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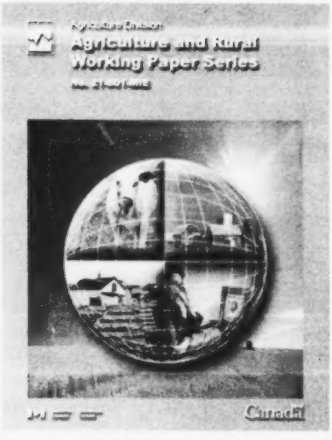
Northern Ontario's Communities: Economic Diversification, Specialization and Growth



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Northern Ontario's Communities: Economic Diversification, Specialization and Growth

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Note of appreciation: Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

Table of contents

Executive summary 4

1. Introduction 6

1.1 Objectives of the study 6
1.2 Study area – Northern Ontario 7

2. Data and methodology 7

2.1 Measuring economic diversification 7
2.2 Labour force definition 9
2.3 Skill categories 10
2.4 Geography 11

3. Study results 14

3.1 Employment structure 14
3.2 Diversification versus specialization 21
3.3 Skill factors 41

4. Summary and conclusions 46

Appendices

Appendix A Structure of total employment by industry (those aged 15 years and over), Census of Population, 1981, 1986, 1991, 1996 and 2001 49

Appendix B Community diversification/specialization and labour force growth/decline 50

Appendix C Employment structure and trends in the larger cities of Northern Ontario 53

Appendix D Factors associated with employment change in each five year Period from 1981 to 2001 61

Appendix E Overview of occupational skill levels and gender 63

Report prepared for the Federal Economic Development Initiative for Northern Ontario (FedNor), August 31, 2004

Executive summary

Regional economic development in Canada has been influenced over the past two decades by factors such as a major increase in the international movements of goods, services and labour, technological innovations that have led to the substitution of capital for labour, and a shift to a more service-based economy. Recent studies by Statistics Canada have analyzed the relationships between job growth or decline and the degree of community economic diversification or specialization. It has been shown that there is a wide range in the degree of economic diversification across regions of Canada. In addition, there is a wide range in the degree of economic diversification in the smaller communities within each region. These studies have concluded that there is a weak association between the degree of community diversification and employment growth.

The objective of this paper is to analyze the degree of economic diversification or specialization in communities in Northern Ontario between 1981 and 2001 and its relationship to changes in the workforce. Northern Ontario is characterised by a vast land mass and low population. While the region covers almost 90 percent of the Ontario land area, it has a population of only 786,500 people, less than the newly amalgamated city of Ottawa. A major challenge for Northern Ontario is declining population. Between 1996 and 2001 the population fell by 4.5 percent.

This study uses a Herfindahl Index (HI) to measure economic diversification. This analytical method reveals the degree to which the workforce is spread across 18 industrial sectors within both census consolidated subdivisions (CCSs), or "communities," and census divisions (CDs), or "regions," within Northern Ontario. The study also looks at the complement of employment skills to determine whether the proportion of various skills in Northern Ontario is similar to the national average.

Job growth averaged one percent annually in Northern Ontario between 1981 and 1991; however, this changed between 1991 and 2001 when there was an average job loss of 0.6 percent annually. However, over the full period of 1981 to 2001, Northern Ontario's workforce increased by a net four percent. In addition, the structure of employment in Northern Ontario changed dramatically between 1981 and 2001. The share of employment in primary and manufacturing industries declined from 28 percent in 1981 to 16 percent in 2001 with employment shifting to the service industries.

A wide range in employment growth was experienced among the 79 communities in Northern Ontario (as defined by this study). Over the 20 year period, 57 communities (72 percent) had employment growth while 21 communities (28 percent) experienced a decline in employment. One community showed no net change in employment over

this period. The workforce of 20 communities grew by more than 50 percent over the 1981 to 2001 period.

Within each region, there is a wide variation in the degree of community economic specialization/diversification. On average, between 1981 and 2001, regions and communities in Northern Ontario underwent economic specialization. As well, they tended to become more similar in their economic specialization/diversification profile. However, in 2001, communities within each region continued to show a considerable range in their level of economic specialization/diversification. In general, communities in Northern Ontario that had a diversified economy in 1981 were more likely to have a growing workforce. However, interestingly, the tendency was for the labour force to grow through economic specialization.

Using a regression analysis, it was found that communities that started with a higher share of employment in mining and forestry manufacturing and those that started with a higher share of individuals living in households with low income had significantly lower employment growth over the 1981 to 2001 period. Communities with a higher female unemployment rate in 1981 reported a higher employment growth rate in the 1981 to 2001 period. It was also interesting to find that communities located in a census division with a larger city did not grow more on average than communities in other census divisions. Therefore, proximity to the larger cities in Northern Ontario did not significantly enhance or restrict the likelihood of employment growth.

When the skill level of those employed in Northern Ontario was compared to the Canadian national average it was found that Northern Ontario had a lower than average share of employment in the "professional" occupational skills group and a higher than average share of workers in the "unskilled" occupation skills group. Moreover, this pattern stayed relatively constant over the 1981 to 2001 period. The lower skill mix within the industries of Northern Ontario may be a factor for attention by regional development officers.

Northern Ontario's communities: Economic diversification, specialization and growth

1. Introduction

Sound regional economic development initiatives are key to the future stability and growth of the Canadian economy. Technological innovations, increased international movements in goods and services and the shift to a more service-based economy have altered the overall economic base of society.

It is often presumed that economic diversity will enhance the prospects for growth of a region. That is, the presence of many industrial sectors would be expected to offer opportunities for employment in a growing sector to compensate for employment declines in other sectors. However, recent reports by Page (2002) and Page and Beshiri (2003) have shown that a wide variation in the degree of economic diversification exists across regions and across communities within each region. Furthermore, there seems to be a weak association between the degree of community/regional diversification and employment growth.

1.1 Objectives of the study

The objective of this paper is to analyse the degree of economic diversification in communities in Northern Ontario over a 20 year period (1981 – 2001). The questions addressed are:

- have communities in Northern Ontario become more economically diversified or specialized between 1981 and 2001?

- how many communities are:

    a. becoming more economically diversified and have a growing workforce;
    b. becoming more economically diversified but have a declining workforce;
    c. becoming more economically specialized and have a growing workforce; and
    d. becoming more economically specialized but have a declining workforce?

- is there a wide range of economic diversification/specialization of communities within regions in Northern Ontario? Has this changed between 1981 and 2001?

- how have occupational skills changed in Northern Ontario?

1.2 Study area — Northern Ontario

Northern Ontario is a Canadian region with a vast land mass and low population. The region covers approximately 800,000 square kilometres, representing almost 90 percent of the Ontario land mass. It has a total population of 786,500, less than the newly amalgamated city of Ottawa.

The principal challenge facing Northern Ontario is its declining population. Between 1996 and 2001, the population of Northern Ontario dropped by 4.5 percent and its share of the provincial population has declined over the past 15 years (Southcott, 2002a). The 2001 Census of Population also confirmed that the rate of youth out-migration from the Northern Ontario region was 18.3 percent between 1996 and 2001 while during these same years the youth in-migration rate to the province of Ontario was 4.7 percent (Southcott, 2002b).

Historically, natural resource industries have been important sources of employment in Northern Ontario – most notably forestry and mining. According to the Economic Developers Council of Ontario (2004), nearly one-third of the communities in northern Ontario are dependent on forestry and of the more than 17,000 people employed by Ontario's mining industry, 84 percent work in northern Ontario.

2. Data and methodology

2.1 Measuring economic diversification

The analysis begins by measuring the economic or industrial diversification within Northern Ontario by calculating a Herfindahl Index (HI) (Box 1). The HI indicates the degree to which the workforce is spread across a variety of industrial sectors for each of the census consolidated subdivisions (CCSs) in a region.

Box 1 The Herfindahl Index (HI)

The Herfindahl Index equals the sum of the squared employment shares of each industrial sector in each community. The Herfindahl Index formula for a community with three industries is:

Herfindahl Index (HI) = (employment share of industry1)^2 + (employment share of industry 2)^2 + (employment share of industry 3)^2

or

Herfindahl Index (HI) = sum of the squared shares of all the industry sectors in the community

For this study, the lowest possible sum, or the most diversified HI, is .056 (since we used 18 industrial sectors to classify the number employed an HI value of .056 was derived from 1 / 18 = .056). The largest possible sum is 1, that is, when one industrial sector accounts for all of the community's employment.

As an example, if a community has five industries where 20 percent are employed in the first industry, 5 percent in the second industry, 10 percent in the third industry, 40 percent in the fourth industry and 25 percent in the fifth industry, the Herfindahl Index would look like this:

$$HI = (.2)^2 + (.05)^2 + (.1)^2 + (.4)^2 + (.25)^2 = 0.28$$

Over a period of time, a change in the Herfindahl Index indicates whether the community is becoming more diversified or specialized. The CCS of Georgian Bay and Nipissing are used here to exemplify this:

- Georgian Bay's HI was 0.226 in 1996 and decreased to 0.197 in 2001, it therefore became more diversified
- Nipissing's HI was 0.206 in1996 and increased to 0.229 in 2001, it therefore became more specialized

In this study, the HI measures the diversification of employment across the following 18 industrial sectors:[1]

Primary Industries

1. Agricultural and related industries
2. Fishing and trapping
3. Logging and forestry
4. Mining, quarrying and oil wells

1. The detailed listing of sectors in each group is provided in Appendix A. Note that for this analysis, we have classified the employment in services incidental to agriculture, forestry and mineral extraction with the producer services sector whereas these services are typically counted with their respective primary sectors.

Traditional Manufacturing

5. Agricultural manufacturing
6. Fishing manufacturing
7. Forestry manufacturing
8. Mining manufacturing
9. Other manufacturing

Complex manufacturing

10. Agricultural manufacturing
11. Printing
12. Metals manufacturing
13. Non-metals manufacturing

Construction

14. Construction

Services

15. Distributive services (includes transportation and storage, communication and other utilities and wholesale and retail trade industries);
16. Producer services (includes finance and insurance agencies, real estate operator and insurance agent industries, business services industries and service industries incidental to agriculture, forestry and mineral extraction);
17. Personal services (includes accommodation, food and beverage service industries and other service industries (i.e. amusement, recreational, personal services, employee associations, leasing services, travel services));
18. Social services (includes government service industries, educational service industries and health and social service industries).

Note that part of agricultural manufacturing is ascribed to traditional manufacturing and part to complex manufacturing. This division is based on the sophistication of the manufacturing process.

2.2 Labour force definition

The labour force used in this study is the experienced labour force and the census years covered are from 1981 to 2001 (Box 2).

Box 2 The experienced labour force

All references to 'labour force', 'workforce', 'employment' or 'those employed' should be understood to mean the "experienced labour force." This includes those 15 years and older, excluding institutional residents, who were employed or unemployed during the week prior to Census Day (May 14) and who last worked for pay or in self-employment during the Census year or since January 1st of the previous year. This allows a better description of the distribution of employment across industries because it includes those who may not be working in the week prior to the census due to layoffs or due to the seasonal nature of their work.

Data sources

The data for this bulletin were tabulated from Statistics Canada's Census of Population for 1981, 1986, 1991, 1996 and 2001, adjusted to 1996 census boundaries.

2.3 Skill categories

This study includes an investigation of the complement of occupational skills in Northern Ontario to determine how the proportion of various skill categories compares to the national average. This is accomplished through the calculation of a Skill Specialization Quotient (SSQ) (Box 3).

Box 3 The skill specialization quotient (SSQ)

The SSQ indicates the intensity of a given occupational skill class in a region, relative to the national average intensity for the occupational skill class. This quotient is the same as a location quotient (as described, for example, in Beshiri (2001a)), except that the SSQ is adjusted for the mix of experienced employment across industries within each region. Thus, the SSQ may be interpreted as, given the mix of experienced employment across industrial sectors in a region, does this region have a higher or lower share (or intensity) of experienced employment in a given occupational skill group, compared to the national average.

Hence there are three relevant ranges for the SSQ:

- SSQ >1 indicates a higher intensity of experienced employment
- SSQ = 1 indicates the same intensity of experienced employment
- SSQ < 1 indicates a lower intensity of experienced employment

For further details on SSQs, see Alasia and Magnusson (2005).

2.4 Geography

In this study, census consolidated subdivisions (CCSs) are used to represent "communities" and census divisions (CDs) are used to represent "regions" or "municipal districts" (Box 4). Statistics Canada has designated 117 CCSs within the census divisions covered by FedNor's administrative area.[2] In this study FedNor and Northern Ontario are used interchangeably.

Given that an HI was calculated across 18 industrial sectors, it was judged preferable to do this calculation for geographic units that had 500 or more employed individuals. In consequence, CCSs with less than 500 employed individuals were grouped with adjacent CCSs. The analysis is, therefore, based on 79 CCSs (or combined CCSs), each with 500 or more employed residents (Map 1.a and Map 1.b).

Box 4 Geographic definitions

This analysis uses census divisions as a proxy for regions and census consolidated sub-divisions as a proxy for communities.

Census divisions (CDs)

A census division is an intermediate geographic area between the municipality (census subdivision) and the province level. Census divisions represent counties, regional districts and regional municipalities.

Census consolidation sub-divisions (CCSs)

A CCS is a consolidation of two or more census subdivisions (i.e. incorporated towns or incorporated municipalities) – the typical case is where an incorporated town is surrounded by an incorporated municipality and they are 'consolidated' for statistical purposes.

In this analysis, CCSs that had less than 500 persons in the experienced labour force were merged with neighbouring, low-employment CCSs until the total employed experienced labour force exceeded 500 persons.

Census metropolitan areas (CMAs) and census agglomerations (CAs)

This paper uses CMAs and CAs to represent Northern Ontario's larger towns and cities.

A CMA is an urban centre with a population of 100,000 and over.

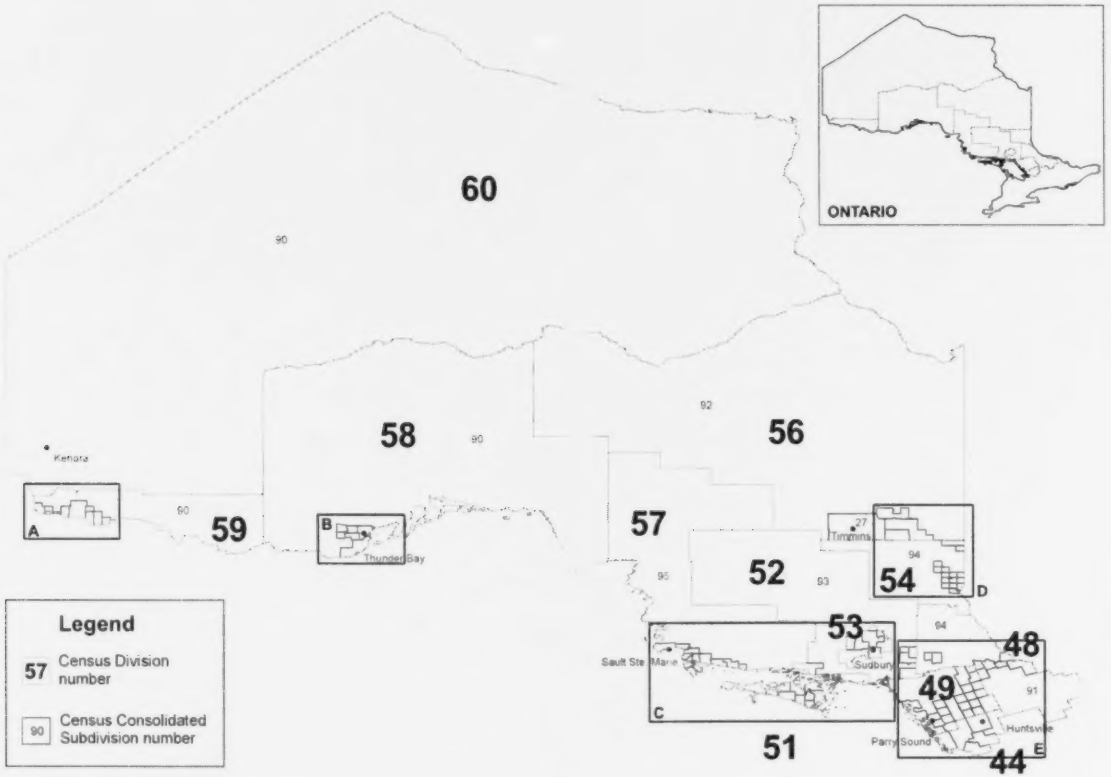
A CA is an urban centre with a population of 10,000 to 99,999.

Both CMAs and CAs include all neighbouring municipalities where 50 percent or more of the workforce commutes to the urban core.

See Statistics Canada (2003) for a more detailed definition of CDs, CCSs, CMAs and CAs.

2. The Federal Economic Development Initiative for Northern Ontario (FedNor) encompasses the following census divisions: Muskoka District (CD44), Nipissing District (CD48), Parry Sound District (CD49), Manitoulin District (CD51), Sudbury District (CD52), Sudbury Regional Municipality (CD53), Timiskaming District (CD54), Cochrane District (CD56), Algoma District (CD57), Thunder Bay District (CD58), Rainy River District (CD59) and Kenora District (CD60).

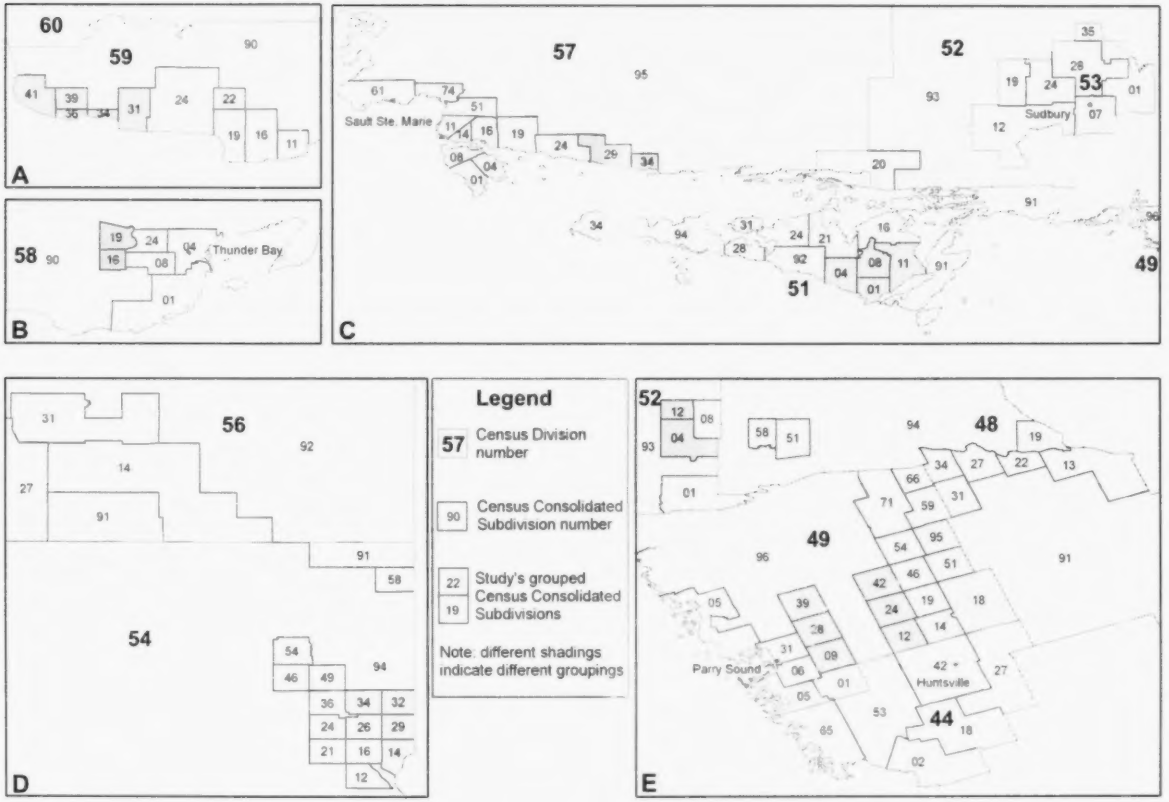
Map 1.a The census divisions and census consolidated subdivisions of Northern Ontario



Source: Statistics Canada, 1996.

Map produced by Spatial Analysis and Geomatics Applications (SAGA), Agriculture Division, Statistics Canada, 2004.

Map 1.b Grouped census consolidated subdivisions of Northern Ontario as defined in this study



Source: Statistics Canada, 1996.

Map produced by Spatial Analysis and Geomatics Applications (SAGA), Agriculture Division, Statistics Canada, 2004.

3. Study results

3.1 Employment structure

- **Northern Ontario employment: Stable overall but some changes across industry sectors**

Employment in the FedNor region increased in the 1980s by 10 percent and declined in the 1990s by 6 percent (Table A). Thus, by 2001, employment was only 4 percent higher than the level of 1981.

Table A Experienced labour force (aged 15 years and over) by industry sector, Northern Ontario, 1981 to 2001

Industry group	Experienced labour force					Percent distribution					Percent change:							
											Over 5 years				Over 10 years			Over 20 years
	1981	1986	1991	1996	2001	1981	1986	1991	1996	2001	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1981 to 1991	1986 to 1996	1991 to 2001	1981 to 2001
Primary industries																		
Agriculture[1]	5,105	4,990	5,000	4,290	4,095	1	1	1	1	1	-2	0	-14	-5	-2	-14	-18	-20
Fishing and trapping	345	380	200	360	395	0	0	0	0	0	10	-47	80	10	-42	-5	98	14
Logging and forestry	7,060	7,690	5,820	5,305	6005	2	2	1	1	1	9	-24	-9	13	-18	-31	3	-15
Mining[2]	29,595	19,420	19,540	15,725	11,690	8	5	5	4	3	-34	1	-20	-26	-34	-19	-40	-61
Total primary industries	**42,040**	**32,495**	**30,635**	**25,735**	**22,245**	**11**	**8**	**7**	**6**	**6**	**-23**	**-6**	**-16**	**-14**	**-27**	**-21**	**-27**	**-47**
Traditional manufacturing																		
Agricultural	3,260	2,825	2,045	1,990	1,745	1	1	0	0	0	-13	-28	-3	-12	-37	-30	-15	-46
Fishing	15	40	10	55	20	0	0	0	0	0	167	-75	450	-64	-33	38	100	33
Forestry	28,470	25,185	22,265	21,745	21,785	7	6	5	5	5	-12	-12	-2	0	-22	-14	-2	-23
Mining	535	505	425	725	665	0	0	0	0	0	-6	-16	71	-8	-21	44	56	24
Other	1,380	990	680	760	880	0	0	0	0	0	-28	-31	12	16	-51	-23	29	-36
Total traditional manufacturing	**33,730**	**29,500**	**25,460**	**25,345**	**25,045**	**9**	**7**	**6**	**6**	**6**	**-13**	**-14**	**0**	**-1**	**-25**	**-14**	**-2**	**-26**
Complex manufacturing																		
Agricultural	190	95	195	55	60	0	0	0	0	0	-50	105	-72	9	3	-42	-69	-68
Printing	2,635	2,450	2,600	2,720	2,320	1	1	1	1	1	-7	6	5	-15	-1	11	-11	-12
Metals	24,805	24,175	18,905	15,300	14,140	6	6	4	4	4	-3	-22	-19	-8	-24	-37	-25	-43
Non-metals	2,700	1,940	1,835	1,960	1,375	1	0	0	0	0	-28	-5	7	-30	-32	1	-25	-49
Total complex manufacturing	**30,305**	**28,650**	**23,570**	**20,075**	**17,880**	**8**	**7**	**6**	**5**	**4**	**-5**	**-18**	**-15**	**-11**	**-22**	**-30**	**-24**	**-41**
Construction	24,080	23,310	29,775	27,030	27,310	6	6	7	7	7	-3	28	-9	1	24	16	-8	13
Distributive Services	99,200	101,500	104,595	105,485	103,715	26	26	25	26	26	2	3	1	-2	5	4	-1	5
Producer Services	26,790	30,520	34,405	33,490	36,340	7	8	8	8	9	14	13	-3	9	28	10	6	36
Personal Services	47,750	55,030	58,965	63,305	60,580	12	14	14	15	15	15	7	7	-4	23	15	3	27
Social Services	84,605	95,365	118,655	110,055	109,505	22	24	28	27	27	13	24	-7	0	40	15	-8	29
Total - Northern Ontario	**388,525**	**396,330**	**426,270**	**410,785**	**402,565**	**100**	**100**	**100**	**100**	**100**	**2**	**8**	**-4**	**-2**	**10**	**4**	**-6**	**4**

Notes. Due to rounding, figures may not add to totals.

1. Agriculture and related industries.
2. Mining, quarrying and oil wells.

0 true zero or a value rounded to zero

Source: Statistics Canada, Census of population, 1981 to 2001.

Within this picture of relatively stable employment, there was a substantial change in the overall structure of employment by industry. This reconfiguration of jobs is the context within which communities specialize or diversify their economy in order to maintain the job base in their community.

- **Primary sector employment falls by 47 percent**

Jobs in the primary sectors[3] of agriculture, forestry and mining fell by 47 percent over the 1981 to 2001 period, declining from 11 percent of all jobs in 1981 to 6 percent of all jobs by 2001. The largest decline was in mining, where the number of jobs fell by 18,000, down 61 percent from the 1981 level of mining employment.

During this period, manufacturing jobs involved in the processing of agricultural products, lumber and minerals also declined. Pulp and paper mills, sawmills and wood manufacturing (traditional forestry manufacturing in Table A) recorded a decline of 6,685 jobs. This represented a decline of 23 percent over the 20 year period. By 2001, only 5 percent of all jobs in Northern Ontario were in traditional forestry manufacturing.

The other major employment decline was in metal manufacturing[4] (complex metals manufacturing in Table A). Between 1981 and 2001, this sector lost over 10,000 jobs – fully 43 percent of the employment level in 1981.

If we look at the primary plus manufacturing sectors together, these sectors represented 28 percent of all jobs in 1981. Led by the changes noted above, the share of jobs in 2001 for these same sectors had declined to only 16 percent.

- **Employment grows in the service industries**

Recall that, overall, total jobs in Northern Ontario were 4 percent higher in 2001 than in 1981. The decline of employment share in the primary and manufacturing industries was offset by increases in the employment share in construction (up 1 percentage point), producer services (up 2 percentage points), personal services (up 3 percentage points) and social services (up 5 percentage points).

Within **social services**, employment increased 29 percent over the 20 years of the study period, largely due to growth in demand from the local population. Within this overall trend there was an increase in social service employment in the late 1980s and a decline in the 1990s. This was driven by changes in the way that governments provided (or downsized) social services. Also, to the extent that the health and education sectors attract "clients" from outside Northern Ontario, these sectors provide a potentially exportable service that brings money into the region. However, the social services sector mainly provides services to the Northern Ontario population and these services are not (either potentially or actually) "exportable" in the sense that they are "sold" to citizens outside

3. Recall that "services incidental to" agriculture, forestry and mining are classified as "producer services" in this study.
4. Metal manufacturing includes nickel, steel, iron and copper manufacturing, machinery manufacturing, manufacturing of aircraft, railway and motor vehicle equipment and electrical and electronic manufacturing.

Northern Ontario. The share of employment involved in social services increased from 22 percent in 1981 to 27 percent in 2001.

Employment in **personal services** (up 27 percent over 20 years) is also largely focused on demand from the population within Northern Ontario. However, this group of industries includes the food, beverage and accommodation sectors which can grow by selling an increasing share of their services to tourists. Nevertheless, the large part of the personal services sector provides services to the Northern Ontario population and these services are not (largely) "exportable." The share of employment involved in personal services increased from 12 percent in 1981 to 15 percent in 2001.

Distributive services, where employment grew by 5 percent over the 20 years of the study period, also largely serve the local population. This sector grew at the same rate as overall employment and maintained a 26 percent share of total employment throughout the 20 year period.

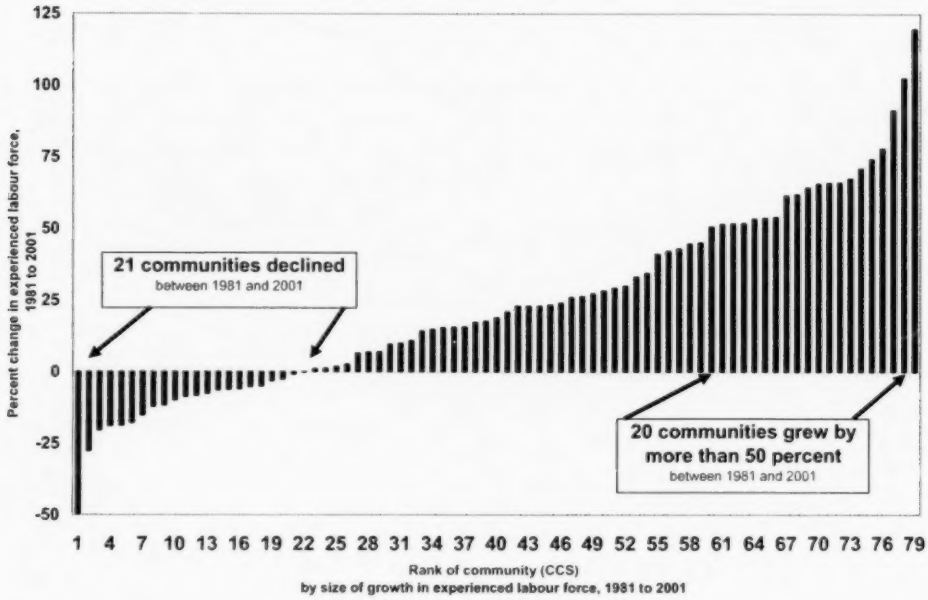
Producer services (up 36 percent over 20 years) are potentially an exportable service. This sector includes financial and consultancy services of all kinds and showed the strongest growth of all the industry groups outlined in Table A.

In this paper, part of the strong growth recorded in the producer services sector is due to the classification of "services incidental to agriculture", "services incidental to forestry" and "services incidental to mining" as part of the "producer services" sector. This is consistent with the analysis by Beshiri and Bollman (2001), Beshiri (2001a, 2001b, 2001c), Page (2002) and Page and Beshiri (2003) but it differs from the usual classification of employment by industry. The removal of these growing sectors from the primary employment data results in the appearance of a more dramatic decline in the primary sectors than other tabulations would show. The growth in producer services occurred due to the provision of various services to the primary sectors. These services can also (potentially) be exported outside Northern Ontario and can thus bring revenue into the region. The share of total employment in Northern Ontario in producer services (as defined in this study) increased from 7 percent in 1981 to 9 percent in 2001.

- **Employment grew by more than 50 percent in 20 Northern Ontario communities**

In the 1981 to 2001 period, there was a wide range of employment growth patterns across the communities in Northern Ontario. Twenty-one communities experienced declining employment, fifty-seven communities experienced increasing employment and one community had no net change. Of the 57 communities with employment growth, 20 communities increased their employment by more than 50 percent (Figure 1 and Table B).

Figure 1 Wide range in employment growth among communities, Northern Ontario, 1981 to 2001

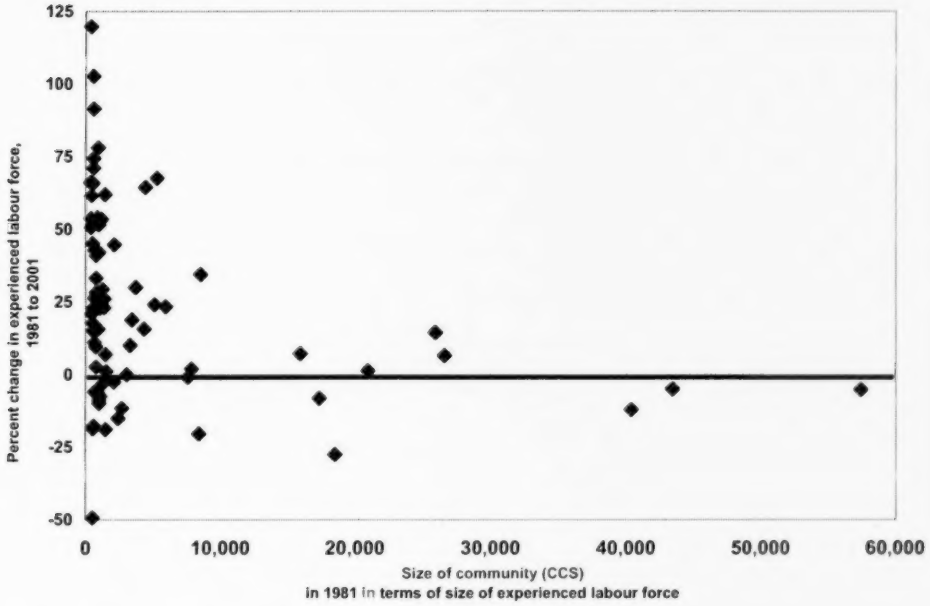

125
100
75
50
25
0
-25
-50
Percent change in experienced labour force, 1981 to 2001
21 communities declined
between 1981 and 2001
20 communities grew by more than 50 percent
between 1981 and 2001
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79
Rank of community (CCS)
by size of growth in experienced labour force, 1981 to 2001

Source: Statistics Canada, Census of population, 1981 to 2001

For communities that had 10,000 or more employed individuals in 1981, the change in the level of employment between 1981 and 2001 ranged from minus 28 percent in Algoma, Unorganized to plus 14 percent in Kenora, Unorganized (Figure 2 and Table B).

For communities with fewer than 10,000 workers, the range in the percent change in employment levels was even wider.

Figure 2 Employment declined in Northern Ontario's three largest cities between 1981 and 2001



Source: Statistics Canada, Census of population, 1981 to 2001

Table B Northern Ontario communities (CCSs) ranked by labour force growth, 1981 to 2001

Community (CCS)		Experienced labour force						
		1981	1986	1991	1996	2001	Percent change, 1981 to 2001	Rank
PA01027041	3554058 McGarry	515	450	420	315	260	-50	1
PA01027062	3557095 Algoma, Unorganized	18,525	18,570	15,745	14,355	13,405	-28	2
PA01027043	3554094 Timiskaming, Unorganized	8,405	8,645	8,280	7,720	6,685	-20	3
PA01027044	3556014 Black River-Matheson	1,475	1,485	1,600	1,435	1,195	-19	4
PA01027017	3552008 Ratter and Dunnet	560	530	565	495	455	-19	5
3557029/34	Day and Bright Addit/Thompson	590	570	520	480	485	-18	6
PA01027024	3553019 Onaping Falls	2,405	2,290	2,470	2,360	2,040	-15	7
PA01027060	3557061 Sault Ste. Marie	40,385	39,180	39,770	37,110	35,460	-12	8
PA01027046	3556031 Iroquois Falls	2,680	2,670	2,785	2,575	2,365	-12	9
PA01026913	3548019 Mattawan	1,000	1,075	1,135	910	900	-10	10
3559031/34/36/39/41	Morley/Dike/Worthington/Blue/Atwood	970	895	940	925	885	-9	11
PA01027048	3556092 Cochrane, Unorganized	17,365	17,120	16,970	16,675	15,920	-8	12
PA01027056	3557024 Thessalon	1,050	1,000	1,065	885	970	-8	13
PA01026877	3544065 Georgian Bay	925	995	1,250	880	865	-6	14
PA01026937	3549054 Machar	720	745	915	730	675	-6	15
PA01026928	3548091 Nipissing, Unorganized	665	765	610	650	625	-6	16
PA01027064	3558004 Thunder Bay	57,460	57,655	59,560	56,480	54,405	-5	17
PA01027022	3553007 Sudbury	43,445	42,870	47,370	43,285	41,240	-5	18
PA01027019	3552020 The Spanish River	1,255	1,410	1,570	1,380	1,215	-3	19
PA01027028	3554012 Haileybury	2,085	2,095	2,325	2,150	2,030	-3	20
PA01027080	3559090 Rainy River, Unorganized	7,580	8,255	8,140	8,015	7,510	-1	21
PA01027030	3554016 Dymond	3,055	3,060	3,315	3,235	3,050	0	22
3554046/49/54	Dack/Evanturel/Chamberlain	1,510	1,545	1,505	1,345	1,525	1	23
PA01027045	3556027 Timmins	20,950	22,075	23,315	22,875	21,195	1	24
PA01027026	3552093 Sudbury, Unorganized	7,850	7,710	8,710	7,705	7,995	2	25
PA01026923	3549005 The Archipelago	765	915	950	925	785	3	26
PA01026921	3548094 Nipissing, Unorganized	26,575	27,330	30,145	28,720	28,285	6	27
PA01027027	3553035 Capreol	1,460	1,545	1,625	1,590	1,560	7	28
PA01027069	3558090 Thunder Bay, Unorganized	15,945	17,475	18,755	17,510	17,055	7	29
355204/12	Casmir/Jennings/Hagar	735	725	830	740	805	10	30
PA01026918	3548051 Springer	3,300	3,595	3,880	3,550	3,630	10	31
PA01027015	3552001 Cosby, Mason and Mar	640	770	800	845	710	11	32
PA01027081	3560090 Kenora, Unorganized	25,905	25,855	28,410	29,420	29,620	14	33
PA01027037	3554036 Armstrong	575	730	675	705	660	15	34
3554014/29/32/43	Harris/Casey/Brethor/Hilliard	585	770	670	765	675	15	35
3557051/74	Macdonald, Meredith/Garden River (latter not included in 1991, 1996)	900	795	650	650	1,040	16	36
PA01027023	3553012 Walden	4,340	4,315	5,100	5,110	5,020	16	37
PA01026919	3548058 Caldwell	610	575	615	725	715	17	38
PA01027055	3557019 Plummer Additional	510	590	625	680	600	18	39

Table B Northern Ontario communities (CCSs) ranked by labour force growth, 1981 to 2001 (continued)

Community (CCS)		Experienced labour force						
		1981	1986	1991	1996	2001	Percent change, 1981 to 2001	Rank
PA01026932	3549031 McDougall	3,430	3,405	4,085	3,955	4,075	19	40
PA01027071	3559016 La Vallee	430	525	535	590	520	21	41
3551001/4/8/11	Tehkummah/Carnorvon/Sandfield/Assiginack	1,050	1,125	1,250	1,285	1,290	23	42
3559019/22	Emo/Kingsford	525	570	615	580	645	23	43
PA01026942	3549096 Parry Sound, Unorganized	1,350	1,430	1,430	1,665	1,660	23	44
PA01027025	3553024 Rayside-Balfour	5,925	6,280	7,585	7,480	7,305	23	45
PA01027021	3553001 Nickel Centre	5,130	5,070	6,270	6,310	6,360	24	46
PA01027065	3558008 Paipoonge	1,365	1,540	1,605	1,655	1,720	26	47
3554021/24/26	Hudson/Kerns/Harley	665	700	780	790	840	26	48
3557011/14/16	Laird/Tarbutt ansd Tarbutt/Johnson	790	875	1,120	1,040	1,005	27	49
PA01026935	3549046 Strong	780	865	925	995	1,000	28	50
PA01026938	3549059 South Himsworth	1,230	1,465	1,475	1,460	1,590	29	51
PA01026872	3544002 Gravenhurst	3,710	3,975	4,625	4,425	4,820	30	52
PA01026929	3549019 Armour	770	855	1,025	1,060	1,025	33	53
PA01027026	3553028 Valley East	8,535	8,475	11,120	11,580	11,470	34	54
3551021/28/31/91/94	Billings/Burpee/Barrie Is./Manitoulin Mainland, Unorganized/ Manitoulin West, Unorganized	780	790	890	795	1,100	41	55
PA01027006	3551016 Howland	975	1,040	1,190	1,275	1,385	42	56
3557001/4/8	Jocelyn/Hilton/St. Joseph	665	680	845	835	950	43	57
PA01026876	3544053 Muskoka Lakes	2,115	2,210	2,795	2,925	3,060	45	58
PA01026924	3549006 Foley	510	730	735	875	740	45	59
PA01026916	3548031 Chisholm	395	505	580	595	595	51	60
PA01027068	3558024 Oliver	970	1,255	1,385	1,605	1,470	52	61
PA01026940	3549071 Nipissing	570	575	755	780	865	52	62
3548013/22	Papineau-Cameron/Calvin	530	490	700	640	805	52	63
PA01026939	3549066 North Himsworth	1,170	1,165	1,495	1,620	1,795	53	64
PA01027074	3559024 Chapple	400	330	470	490	615	54	65
PA01026874	3544027 Lake of Bays	860	1,075	1,315	1,285	1,325	54	66
PA01027008	3551024 Gordon	430	470	640	600	695	62	67
PA01026917	3548034 East Ferris	1,420	1,485	2,070	2,205	2,300	62	68
PA01026873	3544018 Bracebridge	4,420	5,065	6,235	6,675	7,265	64	69
PA01027063	3558001 Neebing	495	650	775	810	820	66	70
3558016/19	O'Conner/Conmee	500	690	725	825	830	66	71
PA01027070	3559011 Alberton	340	385	440	535	565	66	72
PA01026875	3544042 Huntsville	5,285	5,770	7,600	7,750	8,855	68	73
3549012/24/42	McMurrich/Ryerson/Chapman	570	685	990	865	975	71	74
PA01026915	3548027 Bonfield	565	700	835	755	985	74	75
3549014/18/51/95	Perry/Kearny/Joly/Parry Sound Unorganized	910	990	1,360	1,520	1,620	78	76
3549009/28/39	Christie/McKeller/Hagerman	585	640	865	905	1,120	91	77
PA01027012	3551092 Manitoulin Centre, Unorganized	570	575	875	1,160	1,155	103	78
PA01026922	3549001 Humphrey	380	480	680	585	835	120	79

Source: Statistics Canada, Census of population, 1981 to 2001.

The three communities with the largest relative employment declines (McGarry; Algoma, Unorganized; Timiskaming, Unorganized) (Table C) each experienced a dramatic decline in mining employment between 1981 and 2001.

The three communities with the largest relative employment increases (Christie/McKeller/Hagerman; Manitoulin Centre, Unorganized; Humphrey) each experienced increased employment in the distributive, personal and social services sectors.

Table C Employment in selected sectors for communities with large rates of employment change between 1981 and 2001

Community (CCS)	Year	Total - All industries	Logging and forestry	Mining, quarrying and oil wells	Forestry manufacturing (traditional)	Metals manufacturing (complex)	Distributive services	Producer services	Personal services	Social services	All other sectors
Three communities with largest percent employment decline from 1981 to 2001											
McGarry	1981	515	5	275	10	5	60	30	25	75	30
	1986	450	5	245	25	0	50	10	45	60	10
	1991	420	10	95	10	0	50	115	20	95	25
	1996	315	0	110	10	0	85	20	40	45	5
	2001	260	0	35	10	10	55	50	15	80	5
Algoma, Unorganized	1981	18,525	335	5,080	1,015	610	3,925	1,195	2,255	2,815	1,295
	1986	18,570	565	4,230	775	1,475	4,025	965	2,190	3,205	1,140
	1991	15,745	510	2,680	610	625	3,440	905	2,265	3,705	1,005
	1996	14,355	305	985	1,050	535	3,425	1,030	2,300	3,570	1,155
	2001	13,405	480	290	1,135	465	3,115	1,040	2,395	3,385	1,100
Timiskaming, Unorganized	1981	8,405	160	1,155	280	90	1,840	1,035	870	1,915	1,060
	1986	8,645	195	1,045	285	175	2,010	965	1,125	2,050	795
	1991	8,280	130	725	245	155	1,780	835	1,085	2,540	785
	1996	7,720	180	575	245	110	1,835	685	1,160	2,160	770
	2001	6,685	165	280	315	110	1,555	690	955	1,810	805
Three communities with largest percent employment increase from 1981 to 2001											
Christie/McKeller/ Hagerman	1981	585	10	0	10	0	140	35	60	145	185
	1986	640	5	0	15	10	175	10	140	160	125
	1991	865	0	0	0	40	195	55	160	225	190
	1996	905	0	0	0	50	250	90	205	190	120
	2001	1,120	0	0	0	85	320	55	245	280	135
Manitoulin, Unorganized	1981	730	15	65	50	10	65	75	90	335	25
	1986	675	40	55	10	25	110	55	125	210	45
	1991	875	25	55	15	15	125	30	180	340	90
	1996	1,160	45	10	20	0	160	75	260	465	125
	2001	1,155	35	50	30	0	125	55	205	485	170
Humphrey	1981	380	0	5	5	5	85	20	90	90	80
	1986	480	0	0	0	10	115	25	85	130	115
	1991	680	0	0	15	25	210	50	150	130	60
	1996	585	0	0	10	25	205	40	70	140	95
	2001	835	0	0	10	30	175	80	220	115	205

0 true zero or a value rounded to zero

Source: Statistics Canada, Census of population, 1981 to 2001

Appendix C presents a full discussion on employment structure and trends in the largest cities in Northern Ontario. The above description of the overall change in employment by sector sets the context for understanding the economic diversification or specialization patterns within the communities of Northern Ontario during the 1981 to 2001 period.

3.2 Diversification versus specialization

- **The economic diversification of Northern Ontario communities varies widely within each region**

In Northern Ontario, there tends to be a wide range in the level of economic diversification/specialization of individual communities within a given region.

A visual comparison of the economic diversification patterns seen in 1981, 1986, 1991, 1996 and 2001 (Figures 3 to 7) reveals, on the horizontal dimension:

- a shift in the pattern towards the right — i.e., census divisions reported a higher HI over time indicating they were becoming more specialized; and

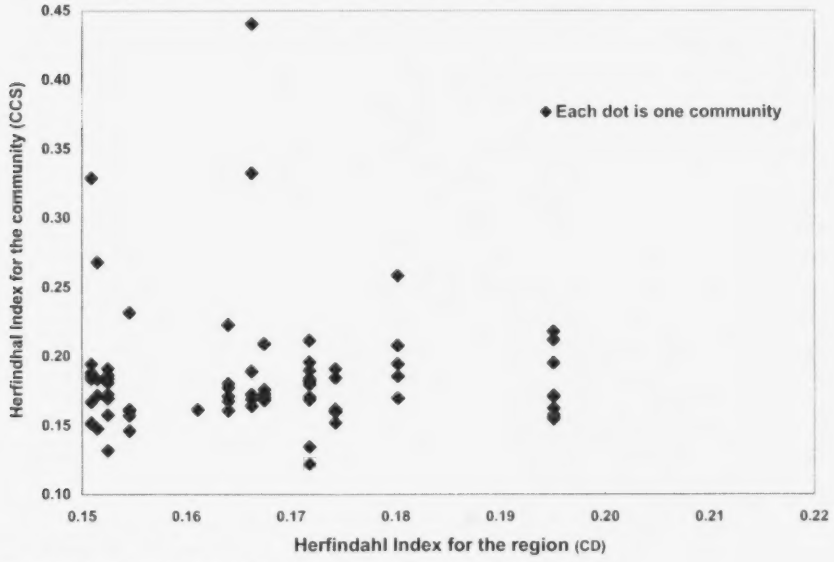
- By 2001, the scatter was tighter — i.e., census divisions reported an HI that was closer to each other and therefore more similar.

Similarly, on the vertical dimension:

- the scatter moved up a little as the median HI was 0.17 in 1981 and 0.185 in 2001 — i.e., communities became a little more specialized, overall, between 1981 and 2001; and

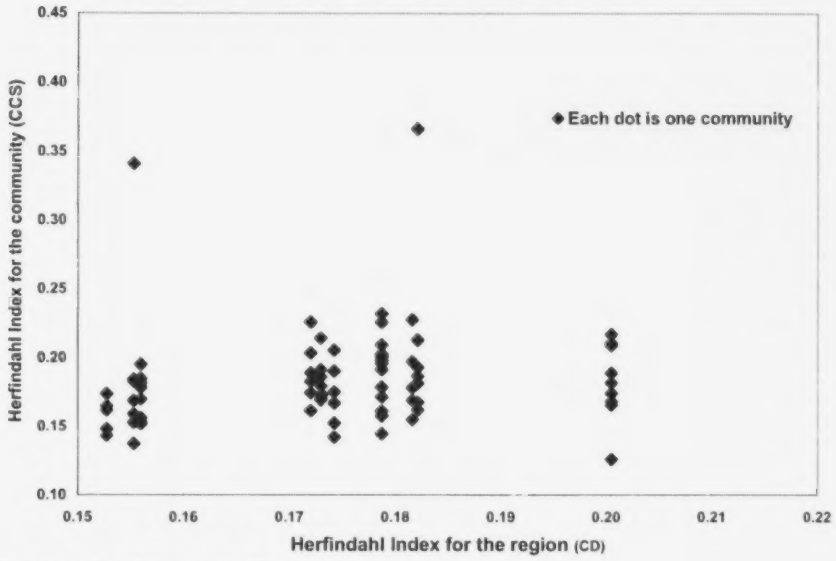
- by 2001, the scatter was tighter (for communities within regions) as communities became more similar in terms of their HI.

Figure 3 Range in the level of economic diversification among communities within each region, Northern Ontario, 1981



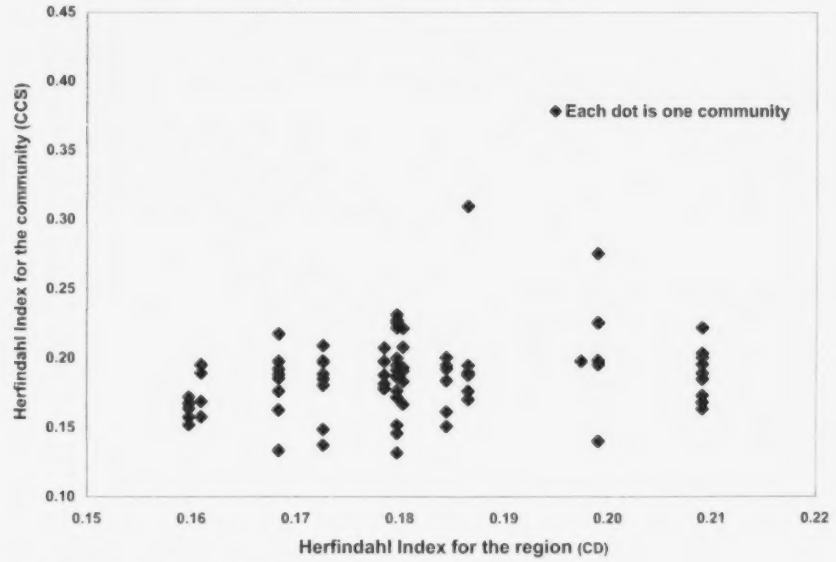
Source: Statistics Canada, Census of population, 1981

Figure 4 Range in the level of economic diversification among communities within each region, Northern Ontario, 1986



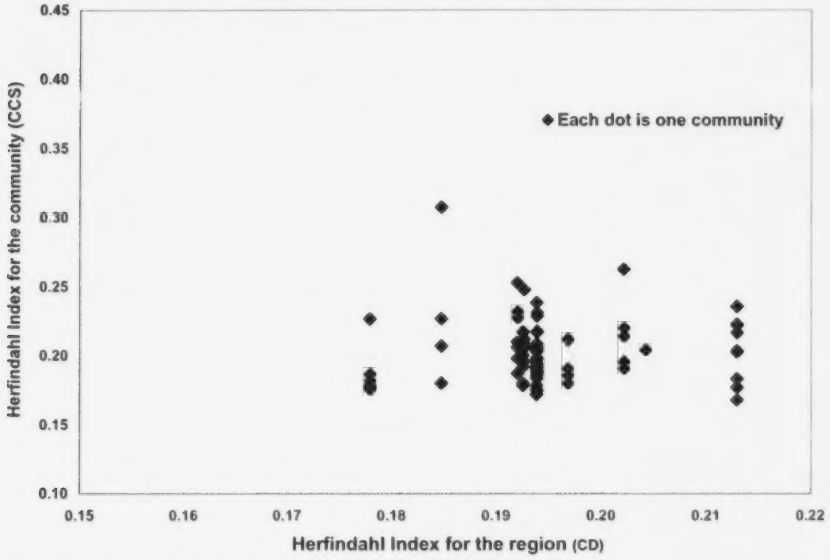
Source: Statistics Canada, Census of population, 1986.

Figure 5 Range in the level of economic diversification among communities within each region, Northern Ontario, 1991



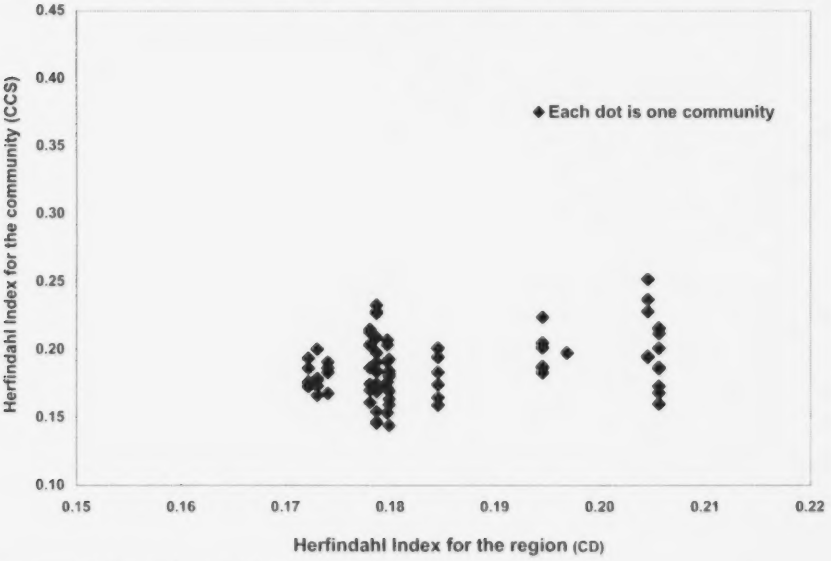
Source: Statistics Canada, Census of population, 1991.

Figure 6 Range in the level of economic diversification among communities within each region, Northern Ontario, 1996



Source: Statistics Canada, Census of population, 1996.

Figure 7 Range in the level of economic diversification among communities within each region, Northern Ontario, 2001



Source: Statistics Canada, Census of population, 2001.

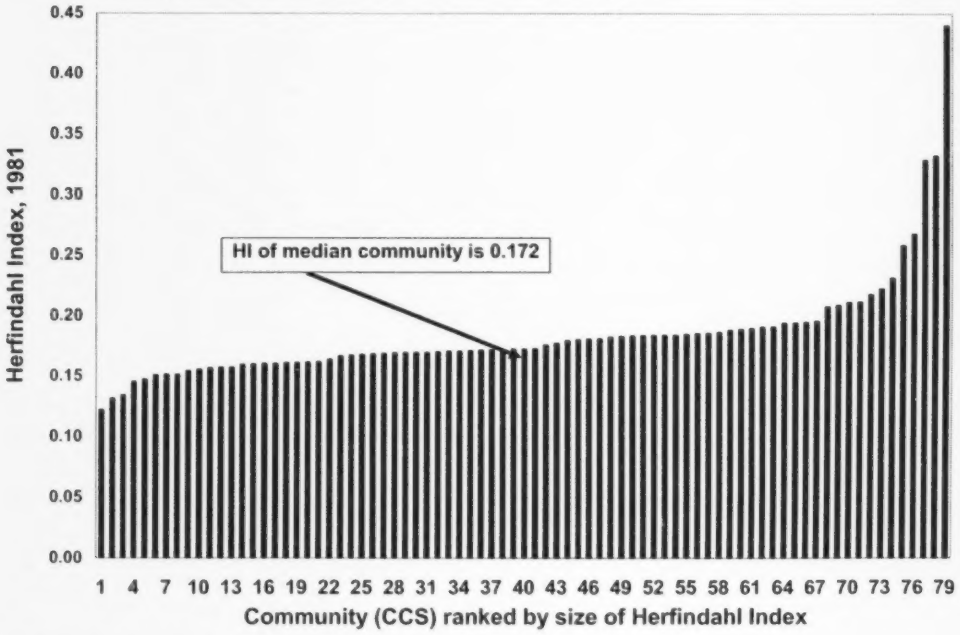
- **Herfindahl indexes are trending towards the median**

In 1981, there was a relatively wide range in the HI among communities in Northern Ontario – from a low of 0.12 (diversified) to a high of 0.44 (specialized) (Figure 8). However, most communities had a HI between 0.15 and 0.20, with a median HI of 0.17.

By 2001, the median HI was 0.185, illustrating that, on average, Northern Ontario communities had become slightly more specialized (Figure 9). Most communities had a HI near the median – between 0.16 and 0.21.

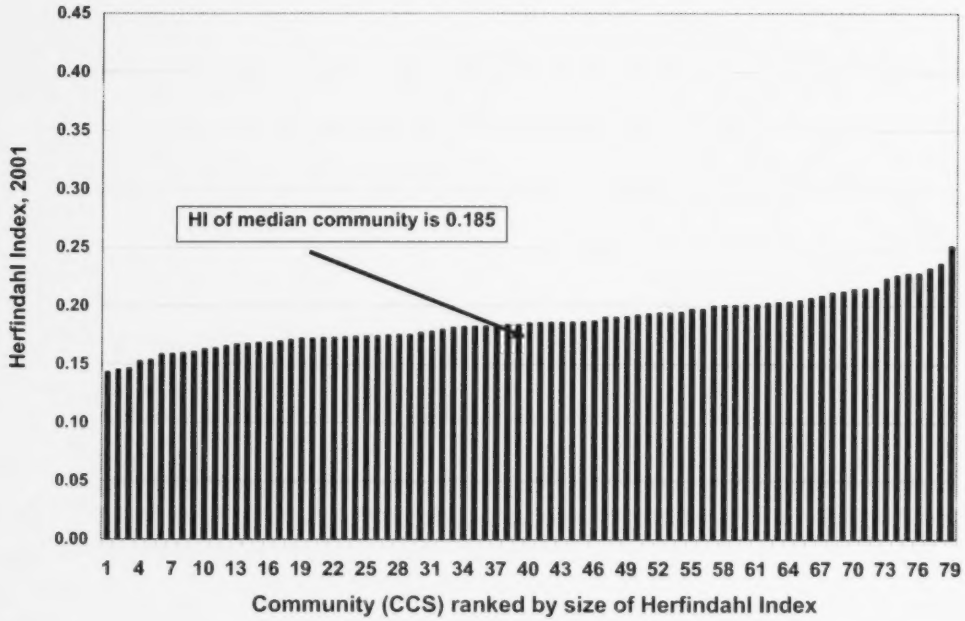
Comparing Figures 8 and 9, note that the most diversified community in 2001 (with an HI of 0.14, at the left side of Figure 9) was still more specialized than the most diversified community in 1981 (with an HI of 0.12, at the left side of Figure 8). As well, the most specialized community in 2001 (with an HI of 0.25, at the right of Figure 9) was more diversified than the most specialized community in 1981 (with an HI of 0.44, at the right of Figure 8).

Figure 8 The Herfindahl Index (HI) of community specialization/diversification ranges from 0.12 to 0.44, Northern Ontario, 1981



Source: Statistics Canada, Census of population, 1981.

Figure 9 Herfindahl Index (HI) of community diversification/specialization ranges from 0.14 to 0.25, Northern Ontario, 2001

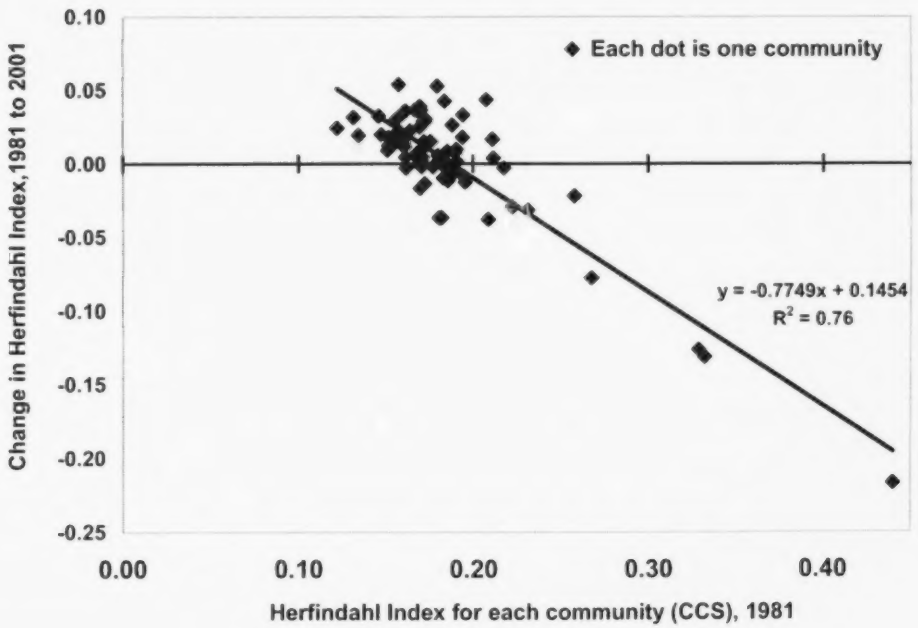


Source: Statistics Canada, Census of population, 2001.

- **Northern Ontario communities became more economically alike**

An analysis of the size of change in the HI will show the extent to which communities have become more diversified (a declining HI) or more specialized (an increasing HI). The negative relationship between the HI of the community in 1981 and the change in HI between 1981 and 2001 suggests that many communities which were economically diversified (low HI) in 1981 became more economically specialized over the next 20 years (i.e., their HI increased) (Figure 10). Those communities that were economically specialized (high HI) in 1981 were more likely to become more economically diversified (i.e., their HI decreased). Therefore, communities became more alike over the study period. Highly specialized communities became more diversified and highly diversified communities became more specialized.

Figure 10 The larger the degree of economic "specialization" (horizontal axis), the greater the move towards "diversification" (vertical axis), Northern Ontario communities, 1981 to 2001

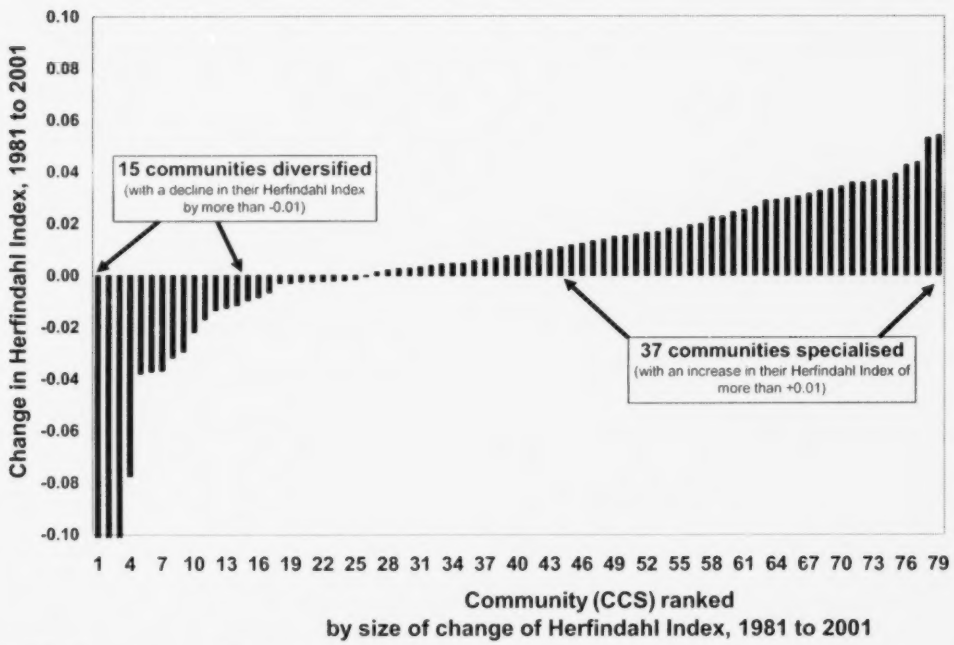


Source: Statistics Canada, Census of population, 1981 to 2001

- **More Northern Ontario communities specialized than diversified their economies from 1981 and 2001**

In the 1981 to 2001 period, two-thirds of Northern Ontario communities became more economically specialized (i.e., their HI increased) (Figure 11 and Table D). However, one-third of the communities reported only a small change in their level of economic specialization/diversification. Twenty-nine communities had a change in the HI of between minus 0.01 and plus 0.01.

Figure 11 Most communities reported a small change in their level of economic specialization/diversification, Northern Ontario, 1981 to 2001


Change in Herfindahl Index, 1981 to 2001
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
15 communities diversified
(with a decline in their Herfindahl Index by more than -0.01)
37 communities specialised
(with an increase in their Herfindahl Index of more than +0.01)
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76 79
Community (CCS) ranked
by size of change of Herfindahl Index, 1981 to 2001

Source: Statistics Canada, Census of population, 1981 to 2001.

Between 1981 and 2001, the average change in the HI across the 79 communities in Northern Ontario was 0.017. Only six communities reported a change of more than ± 0.05 in their HI. Four communities reported a decline of more than -0.05 (i.e., they diversified) and two communities reported an increase of more than +0.05 (i.e., they specialized).

Table D Northern Ontario communities ranked by size of change in Herfindahl Index, 1981 to 2001

Community (CCS)	Herfindahl Index						
	1981	1986	1991	1996	2001	Change, 1981 to 2001	Rank
3553035 Capreol	0.440	0.366	0.309	0.238	0.223	-0.217	1
3553019 Onaping Falls	0.332	0.213	0.189	0.208	0.201	-0.131	2
3554058 McGarry	0.329	0.341	0.197	0.228	0.202	-0.126	3
3556031 Iroquois Falls	0.268	0.220	0.195	0.307	0.190	-0.078	4
3559031/34/36/39/41 Morley/Dike/Worthington/Blue/Atwood	0.209	0.186	0.221	0.196	0.171	-0.038	5
3557029/34 Day and Bright Addit/Thompson	0.181	0.185	0.192	0.209	0.143	-0.037	6
3549019 Armour	0.182	0.158	0.145	0.189	0.145	-0.037	7
3552008 Ratter and Dunnet	0.231	0.173	0.172	0.180	0.200	-0.032	8
3544065 Georgian Bay	0.222	0.226	0.207	0.226	0.193	-0.029	9
3551091 Manitoulin Centre, Unorganized	0.258	0.178	0.225	0.248	0.236	-0.022	10
3559024 Chapple	0.170	0.169	0.193	0.220	0.153	-0.017	11
3557011/14/16 Laird/Tarbutt and Tarbutt/Johnson	0.172	0.152	0.176	0.180	0.159	-0.013	12
3549001 Humphrey	0.195	0.209	0.225	0.229	0.183	-0.013	13
3554036 Armstrong	0.186	0.153	0.137	0.227	0.174	-0.012	14
3549096 Parry Sound, Unorganized	0.183	0.178	0.191	0.187	0.173	-0.010	15
3548027 Bonfield	0.195	0.126	0.200	0.177	0.186	-0.008	16
3553024 Rayside-Balfour	0.189	0.167	0.176	0.185	0.182	-0.007	17
3548034 East Ferris	0.218	0.210	0.195	0.216	0.215	-0.003	18
3558090 Thunder Bay, Unorganized	0.162	0.152	0.161	0.191	0.159	-0.003	19
3548013/22 Papineau-Cameron/Calvin	0.162	0.209	0.163	0.203	0.160	-0.002	20
3557051/74 Macdonald, Meredith/Garden River (latter not included in 1991, 1996)	0.186	0.178	0.197	0.217	0.184	-0.002	21
3549059 South Himsworth	0.170	0.171	0.200	0.194	0.168	-0.002	22
3544018 Bracebridge	0.177	0.183	0.197	0.187	0.175	-0.002	23
3557001/4/8 Jocelyn/Hilton/St. Joseph	0.184	0.153	0.217	0.200	0.182	-0.002	24
3558001 Neebing	0.184	0.205	0.183	0.192	0.183	-0.001	25
3557095 Algoma, Unorganized	0.169	0.156	0.162	0.178	0.169	-0.001	26
3557061 Sault Ste. Marie	0.191	0.181	0.185	0.210	0.192	0.001	27
3548031 Chisholm	0.170	0.174	0.173	0.168	0.172	0.002	28
3554046/49/54 Dack/Evanturel/Chamberlain	0.183	0.184	0.188	0.198	0.186	0.003	29
3556092 Cochrane, Unorganized	0.183	0.179	0.189	0.227	0.186	0.003	30
3549046 Strong	0.181	0.200	0.171	0.191	0.184	0.003	31
3548094 Nipissing, Unorganized	0.212	0.217	0.222	0.222	0.215	0.004	32
3552001 Cosby, Mason and Mar	0.161	0.148	0.163	0.211	0.166	0.004	33
3544002 Gravenhurst	0.167	0.161	0.181	0.179	0.172	0.005	34
3544027 Lake of Bays	0.171	0.203	0.187	0.177	0.175	0.005	35
3544053 Muskoka Lakes	0.180	0.189	0.178	0.176	0.186	0.006	36
3549054 Machar	0.168	0.198	0.186	0.217	0.174	0.006	37
3549005 The Archipelago	0.184	0.232	0.221	0.204	0.190	0.007	38
3559011 Alberton	0.168	0.191	0.166	0.191	0.175	0.007	39
3549066 North Himsworth	0.189	0.196	0.187	0.198	0.197	0.008	40

Table D Northern Ontario communities ranked by size of change in Herfindahl Index, 1981 to 2001 (continued)

Community (CCS)	Herfindahl Index						
	1981	1986	1991	1996	2001	Change, 1981 to 2001	Rank
3551021/28/31/92/94 Billings/Burpee/Barrie Is./Manitoulin Mainland, Unorganized/ Manitoulin West, Unorganized	0.185	0.155	0.140	0.205	0.194	0.008	41
3554014/29/32/43 Harris/Casey/Brethor/Hilliard	0.151	0.184	0.185	0.206	0.160	0.009	42
3558004 Thunder Bay	0.191	0.190	0.200	0.208	0.200	0.010	43
3556027 Timmins	0.172	0.157	0.168	0.180	0.182	0.011	44
3544042 Huntsville	0.161	0.174	0.178	0.182	0.172	0.012	45
3558008 Paipoonge	0.152	0.175	0.151	0.172	0.164	0.012	46
3548091 Nipissing, Unorganized	0.154	0.168	0.185	0.203	0.167	0.013	47
3558016/19 O'Connor/Conmee	0.160	0.142	0.194	0.178	0.174	0.014	48
3553028 Valley East	0.172	0.186	0.187	0.192	0.187	0.015	49
3559090 Rainy River, Unorganized	0.176	0.179	0.183	0.214	0.191	0.015	50
3552020 The Spanish River	0.157	0.143	0.157	0.191	0.173	0.016	51
3549031 McDougall	0.211	0.225	0.227	0.231	0.228	0.016	52
3552093 Sudbury, Unorganized	0.160	0.162	0.167	0.212	0.177	0.017	53
3554094 Timiskaming, Unorganized	0.152	0.159	0.180	0.187	0.170	0.018	54
3554016 Dymond	0.194	0.183	0.209	0.252	0.212	0.018	55
3549014/18/51/95 Perry/Kearny/Joly/Parry Sound, Unorganized	0.134	0.161	0.151	0.188	0.154	0.019	56
3556014 Black River-Matheson	0.147	0.128	0.157	0.207	0.167	0.020	57
3557024 Thessalon	0.157	0.195	0.188	0.217	0.180	0.022	58
3553012 Walden	0.164	0.162	0.170	0.184	0.186	0.022	59
3549012/24/42 McMurrich/Ryerson/Chapman	0.122	0.144	0.131	0.174	0.146	0.024	60
3551001/4/8/11 Tehkummah/Carnorvon/Sandfield/Assiginack	0.169	0.197	0.198	0.196	0.195	0.025	61
3554021/24/26 Hudson/Kerns/Harley	0.188	0.137	0.148	0.232	0.214	0.026	62
3553001 Nickel Centre	0.172	0.181	0.188	0.198	0.201	0.029	63
3548019 Mattawan	0.171	0.188	0.189	0.235	0.200	0.029	64
3548058 Caldwell	0.156	0.166	0.168	0.183	0.185	0.030	65
3559016 La Vallee	0.173	0.170	0.190	0.191	0.203	0.030	66
3557019 Plummer Additional	0.131	0.170	0.133	0.192	0.163	0.031	67
355204/12 Casmir/Jennings/Hagar	0.146	0.165	0.152	0.186	0.178	0.032	68
3551016 Howland	0.194	0.227	0.275	0.206	0.227	0.033	69
3558024 Oliver	0.160	0.167	0.192	0.175	0.194	0.034	70
3553007 Sudbury	0.169	0.193	0.194	0.203	0.204	0.036	71
3560090 Kenora, Unorganized	0.161	0.173	0.197	0.204	0.197	0.036	72
3559019/22 Emo/Kingsford	0.170	0.214	0.208	0.262	0.206	0.037	73
3554012 Haileybury	0.167	0.169	0.198	0.210	0.203	0.037	74
3549009/28/39 Christie/McKeller/Hagerman	0.169	0.202	0.176	0.197	0.208	0.039	75
3549071 Nipissing	0.184	0.157	0.194	0.206	0.226	0.043	76
3551024 Gordon	0.208	0.169	0.195	0.212	0.251	0.044	77
3549006 Foley	0.179	0.191	0.231	0.218	0.232	0.053	78
3548051 Springer	0.157	0.181	0.203	0.223	0.211	0.054	79

Source: Statistics Canada, Census of population, 1981 to 2001.

- **Communities that specialized or diversified the most**

The communities with the largest decline in their HI (those with the fastest rate of diversification) are listed at the top of Table D. The three top communities are listed again at the top of Table E with their employment by sector.

- Capreol economically "diversified" due to a decline in its distributive services employment and an increase in employment in producer, personal and social services.

- Onaping Falls economically "diversified" because it lost its specialization in mining employment and it gained jobs in services, particularly distributive services.

- McGarry was economically specialized in mining employment and the decline in mining employment caused the pattern of remaining jobs to be more economically "diversified".

The communities with the largest increase in their HI (those with the fastest rate of specialization) are listed at the bottom of Table D. The bottom three communities are listed again at the bottom of Table E with their employment by sector.

- Gordon and Foley economically specialized by gaining jobs in most services, particularly distributive services.

- Springer was diversified in 1981 with employment in forestry, distributive services and social services. By 2001, forestry employment was down and employment in distributive services and social services was up resulting in a more economically specialized employment mix.

Table E Employment in selected sectors for Northern Ontario communities with large changes in their Herfindahl Index, 1981 to 2001

Community (CCS)	Year	Total - All industries	Mining, quarrying and oil wells	Forestry manu-facturing (traditional)	Other manu-facturing (traditional)	Metals manu-facturing (complex)	Non-metals manu-facturing (complex)	Cons-truction	Distri-butive services	Producer services	Personal services	Social services	All other sectors	HI of CCS	HI of CD
	Three communities with largest decline in their Herfindahl Index from 1981 to 2001														
Capreol	1981	1,480	85	10	0	10	10	25	930	60	105	225	0	0.440	0.166
	1986	1,545	35	0	0	15	5	45	855	130	140	320	0	0.366	0.182
	1991	1,625	75	0	0	0	0	100	750	85	140	460	15	0.309	0.187
	1996	1,590	70	0	0	55	0	110	650	160	200	290	55	0.235	0.190
	2001	1,560	50	20	0	30	0	110	585	185	185	340	55	0.223	0.195
Onaping Falls	1981	2,405	1,295	10	0	90	15	50	315	105	210	280	35	0.332	0.166
	1986	2,290	810	5	0	95	0	60	365	120	255	480	100	0.213	0.182
	1991	2,470	715	0	0	130	0	90	495	170	260	525	85	0.189	0.187
	1996	2,360	615	20	0	65	15	75	630	160	255	475	50	0.198	0.190
	2001	2,040	470	0	20	65	0	85	650	190	175	335	50	0.201	0.195
McGarry	1981	515	275	10	0	5	0	25	80	30	25	75	10	0.329	0.151
	1986	450	245	25	0	0	0	0	50	10	45	60	15	0.341	0.149
	1991	420	95	10	10	0	0	15	50	115	20	95	10	0.197	0.161
	1996	315	110	10	0	0	0	0	85	20	40	45	5	0.236	0.168
	2001	260	35	10	0	10	0	10	55	50	15	80	-5	0.202	0.174
	Three communities with largest increase in their Herfindahl Index from 1981 to 2001														
Gordon	1981	430	0	0	0	0	0	65	130	55	20	115	45	0.208	0.180
	1986	470	20	5	0	0	0	30	125	45	75	100	70	0.189	0.182
	1991	640	0	10	10	15	10	35	185	45	125	155	50	0.195	0.199
	1996	600	10	10	0	0	0	45	205	40	80	110	100	0.191	0.180
	2001	695	0	0	0	20	10	35	275	45	70	190	50	0.251	0.205
Foley	1981	510	0	25	10	25	15	85	120	15	115	100	0	0.179	0.172
	1986	730	5	10	0	45	10	85	200	50	180	155	10	0.191	0.179
	1991	735	0	10	10	10	0	110	185	25	170	220	-5	0.231	0.180
	1996	675	20	15	10	15	15	75	280	40	195	200	10	0.215	0.188
	2001	740	0	15	0	35	0	100	290	50	120	120	10	0.232	0.179
Springer	1981	3,300	80	475	15	85	60	290	785	200	410	745	155	0.157	0.195
	1986	3,595	80	495	5	65	25	290	865	230	410	1,015	115	0.181	0.201
	1991	3,880	60	320	10	85	20	310	945	225	550	1,265	90	0.203	0.209
	1996	3,550	55	205	10	35	10	280	895	255	475	1,235	115	0.217	0.208
	2001	3,630	65	190	75	40	20	245	910	255	515	1,230	85	0.211	0.206

0 true zero or a value rounded to zero

Source: Statistics Canada, Census of population, 1981 to 2001.

- **The inter-relationship between the change in the Herfindahl Index and the change in economic structure**

An important focus of this study is the inter-relationship between the change in the HI and the change in employment. As has been seen, between 1981 and 2001, two-thirds of the communities (53) in Northern Ontario experienced a specialization of their workforce whereas one-third (26) showed diversification (Figure 12).

During the later ten year period, 1991 to 2001, only a slightly larger number of communities specialized than diversified (42 specialized and 37 diversified) (Figure 13). In the 1981 to 2001 period, nearly three-quarters (57) of the communities in Northern Ontario experienced growth in their labour force (compare the top and bottom

boxes in Figure 12). However, in the 1991 to 2001 period, only just over one-half (41) grew (Figure 13).

- **If a community's economy diversified, did its employment grow?**

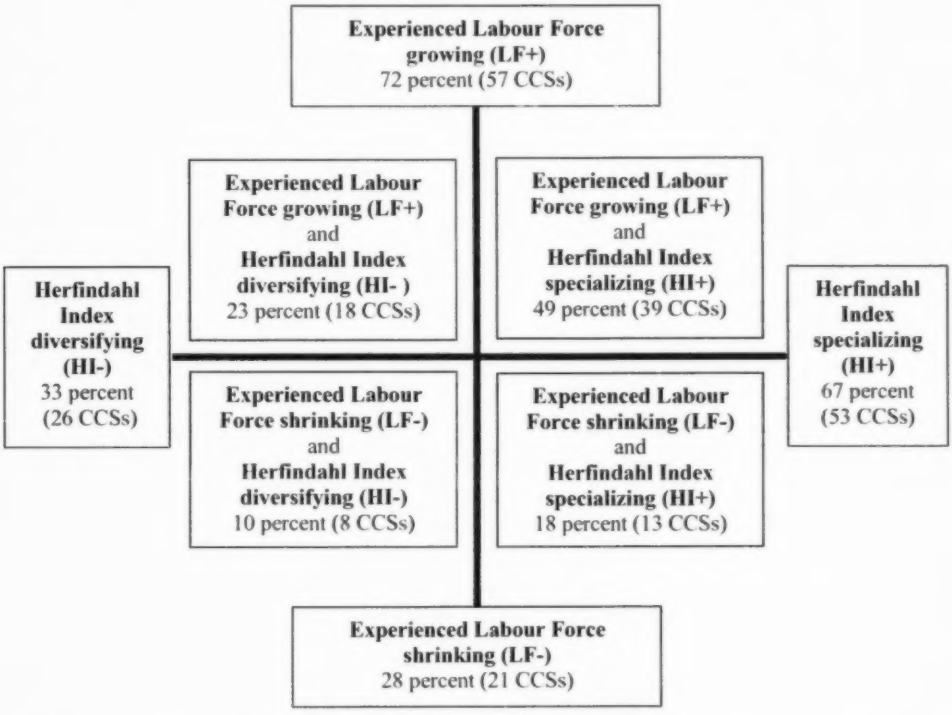
If a community's economy diversified, did it experience employment growth? In the 1981 to 2001 period, amongst the 26 communities that economically diversified, twice as many experienced employment growth than experienced a decline in employment (18 grew and 8 declined) (Figure 12). Thus, if a community economically diversified, the odds were approximately two to one that the community's employment would also grow. These odds of economic diversification and employment growth were the same between 1991 and 2001. Among the 37 communities that diversified (Figure 13), 24 grew and 13 declined.

However, amongst the 53 communities that economically specialized between 1981 and 2001, the odds of employment growth were almost three to one (39 grew, 13 declined and one had no net change in employment). Thus, the odds of employment growth in the 1981 to 2001 period were higher amongst communities that economically specialized than amongst those that economically diversified. Note that for the 1991 to 2001 period, the scenario changes. For the 42 communities that economically specialized during this period, the odds were slightly greater that they would have declining employment (three communities declined for every two communities that grew). Therefore, while, overall in the 1981 to 2001 period, communities that specialized were somewhat more likely to grow, during the latter 10 years of this period the odds were slightly higher for these communities to experience declining employment.

- **If a community's employment grew, did its economy diversify?**

An alternative question to pose is: If the community's employment grew, did its economy diversify? In the 1981 to 2001 period (Figure 12), among the 57 communities that had employment growth, the odds of specializing were approximately two to one — 39 communities specialized and 18 diversified. However, among the 41 communities that had employment growth in the 1991 to 2001 period (Figure 13), the odds (three to two) favoured diversification — 24 diversified and 17 specialized. Thus, if the community's employment grew, there was no clear pattern of diversification or specialization. The findings differed according to the time period under consideration.

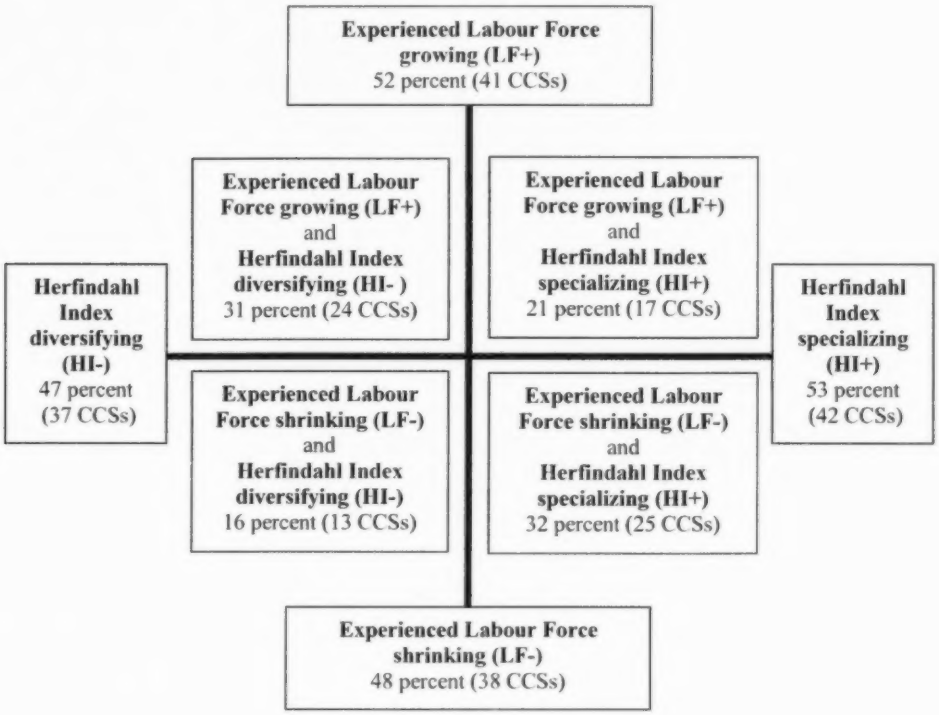
Figure 12 Changes in the experienced labour force and Herfindahl Index, Northern Ontario, 1981 - 2001


Experienced Labour Force growing (LF+)
72 percent (57 CCSs)
Experienced Labour Force growing (LF+) and Herfindahl Index diversifying (HI-)
23 percent (18 CCSs)
Experienced Labour Force growing (LF+) and Herfindahl Index specializing (HI+)
49 percent (39 CCSs)
Herfindahl Index diversifying (HI-)
33 percent
(26 CCSs)
Herfindahl Index specializing (HI+)
67 percent
(53 CCSs)
Experienced Labour Force shrinking (LF-) and Herfindahl Index diversifying (HI-)
10 percent (8 CCSs)
Experienced Labour Force shrinking (LF-) and Herfindahl Index specializing (HI+)
18 percent (13 CCSs)
Experienced Labour Force shrinking (LF-)
28 percent (21 CCSs)

Note: There are 79 CCSs or groupings of CCSs in the FedNor region of Northern Ontario. However, one CCS (Dymond) had no net change in the experienced labour force between 1991 and 2001 and is therefore excluded from both the growing labour force CCS group and the shrinking labour force CCS group shown here.
Source: Statistics Canada, Census of population, 1981 to 2001.

However, in both periods when the community's employment decreased there was a consistent pattern of specialization. Therefore, when employment increased in Northern Ontario's communities there was no clear pattern of economic diversification or specialization. But when employment decreased, the odds were higher that the economies of these communities had become more specialized in both periods.

Figure 13 Changes in the experienced labour force and Herfindahl Index, Northern Ontario, 1991 - 2001


Experienced Labour Force growing (LF+)
52 percent (41 CCSs)
Herfindahl Index diversifying (HI-)
47 percent (37 CCSs)
Herfindahl Index specializing (HI+)
53 percent (42 CCSs)
Experienced Labour Force growing (LF+) and Herfindahl Index diversifying (HI-)
31 percent (24 CCSs)
Experienced Labour Force growing (LF+) and Herfindahl Index specializing (HI+)
21 percent (17 CCSs)
Experienced Labour Force shrinking (LF-) and Herfindahl Index diversifying (HI-)
16 percent (13 CCSs)
Experienced Labour Force shrinking (LF-) and Herfindahl Index specializing (HI+)
32 percent (25 CCSs)
Experienced Labour Force shrinking (LF-)
48 percent (38 CCSs)

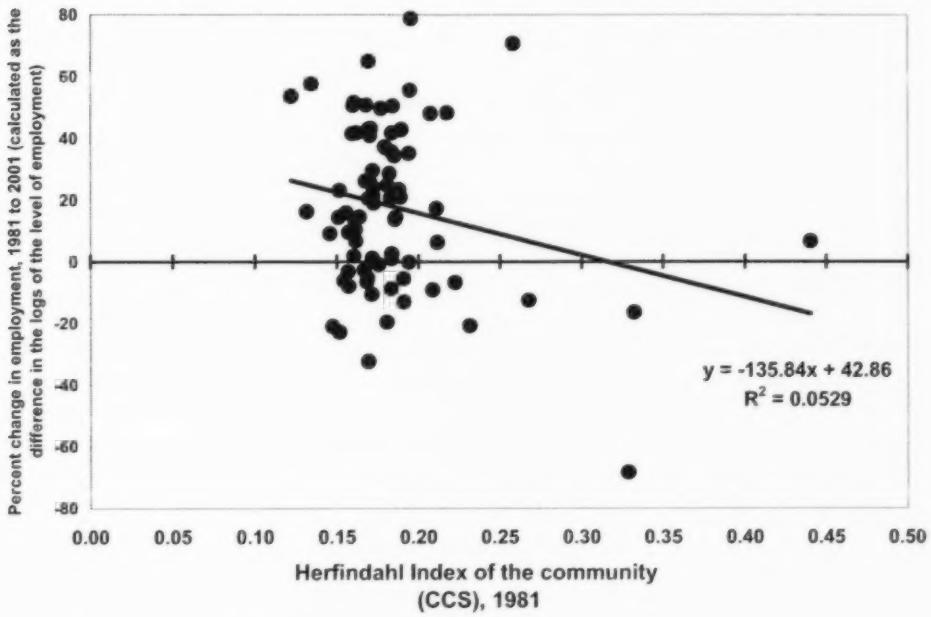
Source: Statistics Canada, Census of population, 1991 to 2001.

- **Northern Ontario communities that were diversified were more likely to have employment growth**

In the above discussion it was suggested that if a community became more diversified, the odds were 2 to 1 that the community also had employment growth in the 1981 to 2001 period. In order to determine whether the level of diversification in 1981 had an independent impact on community employment growth over the 1981 to 2001 period a regression equation was estimated. The dependent variable (i.e., the variable "to be explained") is the percent change in employment at the CCS level between 1981 and 2001.

The simple regression in Figure 14 shows the percent change in community employment as a function of the level of the community HI in 1981. Though it is a weak relationship, this simple regression shows that communities that were more economically diversified in 1981 grew more in employment in the 1981 to 2001 period.

Figure 14 Northern Ontario communities that were more diversified in 1981 grew more by 2001

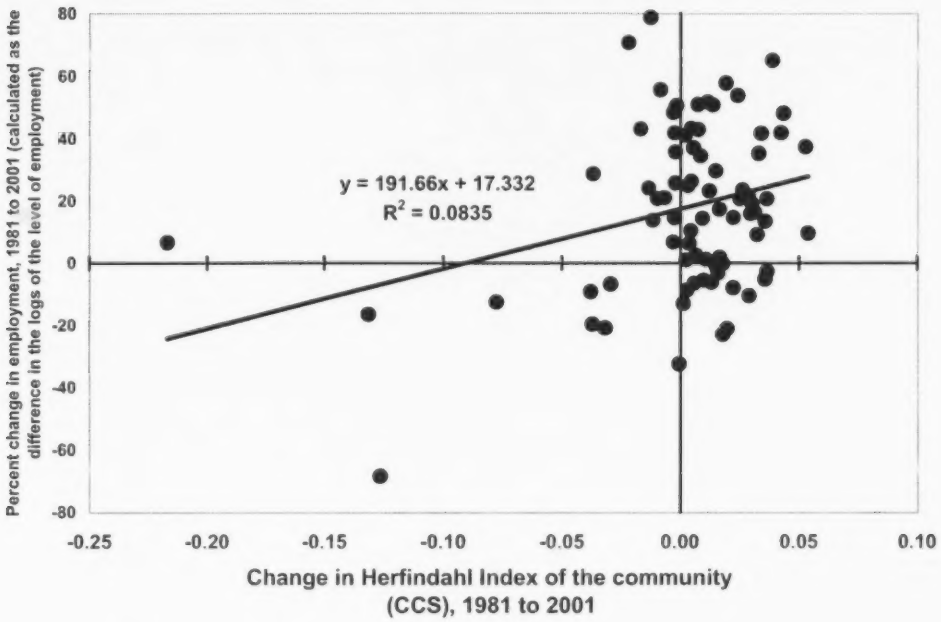


Source: Statistics Canada, Census of population, 1981 to 2001

- **Communities with employment growth tended to have economies that were becoming more specialized**

In the earlier discussion of Figure 12 it was noted that if a community's economy became more specialized between 1981 and 2001 it was more likely to experience employment growth. Despite a weak relationship in the simple regression, higher community employment growth in the 1981 to 2001 period is associated with an increase in economic specialization (Figure 15).

Figure 15 Communities that became more specialized between 1981 and 2001 tended to grow more in economic terms



Source: Statistics Canada, Census of population, 1981 to 2001.

For all combinations of beginning and ending inter-censal periods between 1981 and 2001, the same relationship is observed (except for an insignificant negative slope for the 1991 to 1996 and the 1996 to 2001 periods).

It is perhaps not unexpected that diversified communities are more likely to grow: the old adage of not wanting to have all of one's eggs in one basket. Further, given that diversified communities are more likely to grow, maybe it is not surprising that they appear more specialized after their period of successful growth. Although these results are not statistically strong, the general pattern is that diversified communities are more likely to grow — and they grow by specializing.

- **Communities with a higher share of employment in mining and forestry manufacturing were less likely to report employment growth**

Having shown the results of a simple regression between community employment growth and the level of community economic diversification, the analysis is extended by performing a multiple regression. In this multiple regression a number of variables hypothesized to explain, or to be associated with, community employment growth are

included. This accounts for the impact of these variables and allows us to see if the level of the 1981 HI had an independent impact on employment growth.

The simple regression plotted in Figure 14 may result from the fact that another variable, say the level of educational attainment, is positively correlated with the 1981 level of diversification and, at the same time, is positively correlated with the rate of employment growth from 1981 to 2001. Here, we "hold constant" this factor, among others, to determine the independent impact of the 1981 level of diversification on employment growth from 1981 to 2001.

As discussed above, some industrial sectors have experienced considerable employment declines. The variables that showed the greatest statistically significant results were:

- employment in mining

Communities with a higher share of employment in mining in 1981 reported a statistically significantly lower employment growth over the 1981 to 2001 period (Table F). Relative to the average community, if the share of employment in mining in 1981 was one percentage point higher, the employment growth in the 1981 to 2001 period was 1.3 percentage points lower;

- employment in forestry manufacturing

Communities with a higher share of employment in forestry manufacturing (i.e. pulp and paper mills, sawmills and wood manufacturing firms) in 1981 reported a significantly lower employment growth over the 1981 to 2001 period. Relative to the average community, if the share of employment in forestry manufacturing in 1981 was one percentage point higher, the employment growth in the 1981 to 2001 period was 1.4 percentage points lower.

Table F Factors associated with employment change, Northern Ontario communities, 1981 to 2001

Variables	Mean	Regression coefficient	Standard error	"t" statistic	Significant at 95 percent confidence level
Dependent variable					
Percent change in employment from 1981 to 2001	17.50	...	...	...	
Independent variables (in 1981)					
Intercept		53.24	43.62	1.22	
Herfindahl index	0.18	-145.42	66.86	-2.18	Yes
Percent with non-agricultural self-employment	8.98	-0.15	0.80	-0.19	
Percent (25 to 29 years of age) who moved in during past 5 years	38.14	0.13	0.21	0.63	
Percent (55 to 74 years of age) who moved in during past 5 years	13.03	0.08	0.42	0.19	
Average years of schooling (those 25 to 54 years of age)	10.82	2.21	2.53	0.87	
Percent (20 to 24 years of age) with high school diploma	58.58	0.05	0.22	0.23	
Female (25 to 54 years of age) unemployment rate	7.98	1.06	0.53	1.98	Yes
Male (25 to 54 years of age) unemployment rate	4.66	1.18	0.80	1.48	
Percent below Low Income Cut-off	16.29	-1.20	0.49	-2.46	Yes
Community is in a "city" census division	0.27	-3.10	7.43	-0.42	
Percent of employment in agriculture	5.14	-0.08	0.05	-1.57	
Percent of employment in logging and forestry	2.24	-0.30	1.30	-0.23	
Percent of employment in mining	5.86	-1.31	0.29	-4.58	Yes
Percent of employment in pulp, paper and sawmills	6.64	-1.35	0.41	-3.29	Yes
Percent of employment in metals manufacturing	3.96	-0.46	0.69	-0.67	
Percent of employment in producer services	6.29	-1.65	1.22	-1.36	

Notes: The number of observations was 79.
The adjusted R-square was 0.39.
The dependent variable is calculated as the log of employment in 2001 minus the log of employment in 1981. There was no significant multicollinearity among the dependent variables.
... not applicable

Source: Statistics Canada, Census of population, 1981 to 2001.

Variables with a lower, but still significant, association:

– female unemployment rate

Communities with a higher female unemployment rate in 1981 reported a significantly higher employment growth rate in the 1981 to 2001 period. Relative to the average community, if the female unemployment rate was one percentage point higher in 1981, the subsequent growth of employment was 1.1 percentage points higher. The 1981 male unemployment rate exhibited a similar coefficient but was not statistically significant. It could be that high female unemployment rates indicate an excess supply of labour that would be available to support future growth.

– low income

Communities with a higher share of individuals living in households with low income in 1981 reported a significantly lower employment growth rate in the 1981 to 2001 period. Relative to the average community, if the share of individuals living in low income was one percentage point higher, the employment growth between 1981 and 2001 was 1.2 percentage points lower. Communities with a higher share of individuals with low incomes have relatively less income to support local growth. Also, the incidence of low income may indicate previous periods of slow employment growth.

- **Hypothesized variables that were not statistically significant**

– Communities located in a census division with a larger city would grow more, on average, than communities in the other census divisions. This variable was not found to be significant. Thus, proximity to these cities did not significantly enhance or lower the likelihood of employment growth.

– Communities with a higher share of their workforce with non-agricultural self-employment would be entrepreneurial and would be able to create new jobs. This variable was not significant.

– Communities that were attractive to young adults (as measured by the share of individuals 25 to 29 years of age who had moved into the community in the previous 5 years) would indicate opportunities for community employment growth. This variable was not significant.

– Communities attractive to early retirees (as measured by the share of individuals 55 to 74 years of age who had moved into the community in the previous 5 years) would have a higher level of employment growth. This variable was not significant.

– Communities with a higher level of human capital (as measured by the average years of schooling for the population 25 to 54 years of age) would have higher employment growth — due both to the enhanced ability of the community to attract new firms and the ability of the workforce to create their own jobs. This variable was not significant.

– Communities with a higher share of young adults with a high school diploma would be more likely to attract or to generate jobs. This variable was not significant.

– Communities with a relative specialization in each of the major exportable sectors would have an advantage in terms of employment growth. The exportable sectors included in this analysis were agriculture, logging and forestry, mining, forestry manufacturing, metals manufacturing and producer services. As noted above, communities with a high specialization in mining and in forestry manufacturing had significant losses of employment over the 1981 to 2001 period. The coefficients for the other sectors were not statistically significantly different from zero. However, the coefficients were all negative. This was expected for the primary and manufacturing sectors which have been shedding labour. However, it was noted previously that employment in producer services grew, overall, in Northern Ontario (Table A). A negative coefficient in the regression suggests that a higher share of employment in producer services in 1981 did not make a positive contribution to employment growth in the average

community. This may be due to the downsizing of employment in banks and other financial institutions in smaller communities.

As already seen, holding these eleven factors constant, it was found that communities that were more diversified in 1981 showed higher employment growth in the 1981 to 2001 period. If the HI was higher by 0.1 (i.e., if the community was more specialized in 1981) then growth was lower by 14.5 percentage points.[5] The converse also holds. If the HI was lower by 0.1 in 1981 (i.e., the community was more diversified), then the employment growth rate was 14.5 percentage points higher over the 1981 to 2001 period. This is an "elastic" result where a one percent lower HI in 1981 is associated with a greater than one percent rise in the employment growth rate in the 1981 to 2001 period.[6]

Note that the regression coefficient of the HI in the multiple regression was -145.4 (Table F) and the regression coefficient in the simple regression was -135.8 (Figure 14). This suggests a stable finding. However, since the HI is calculated from the share of employment in each sector, the HI is not independent (and becomes insignificant) if the share of employment in each of the service sectors (which have a high share of total employment) are entered into the regression equation. If we were to enter the share of employment in each of these sectors into the equation, we would be estimating the impact of each sector on employment growth, rather than the impact of diversity across sectors.

While there are some trends and significant associations found between employment change and some of the variables between 1981 and 2001, there were fewer such findings within each of the five year inter-censal periods (Appendix D).

- **Few regions or communities had continuous long-term trends**

For the regions and communities of Northern Ontario, this study has shown there is a wide range of growth/decline patterns and a wide range of specialization/diversification patterns. However, there are relatively few regions or communities with a continuous pattern of employment growth/decline or a continuous pattern of specialization/diversification. Almost every region and community experienced a different trajectory during at least one inter-censal period between 1981 and 2001 (Table G). The pattern for each region and each community is documented in Appendix Table B1.

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5. Literally, the regression coefficient of -145.4 is read as employment would change by -145.4 percentage points if the HI in 1981 was higher by 1. However, the range of the HI is from 0 to 1 and thus it is more realistic to say that employment change would be lower by 14.5 percentage points if the HI were higher by 0.1.

6. Elasticity = {percent change in dependent variable} / {percent change in independent variable}
= {-145.4 / 17.5} / {1.0 / 0.18}
= 1.5

Table G Employment growth/decline and economic specialization/diversification, Northern Ontario communities and regions, 1981 to 2001

Employment characteristics	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1981 to 2001
	Number of census divisions (CDs)				
1. Growing labour force	9	9	4	5	...
2. Declining labour force	2	2	7	6	...
3. Continuous labour force growth in the four inter-censal periods	...	...	...	...	3
4. Continuous labour force decline in the four inter-censal periods	...	...	...	...	1
	Number of census consolidated subdivisions (CCSs)				
5. Growing labour force	56	68	35	38	...
6. Declining labour force	22	11	44	41	...
7. Continuous labour force growth in the four inter-censal periods	...	...	...	...	15
8. Continuous labour force decline in the four inter-censal periods	...	...	...	...	2
	Number of census divisions (CDs)				
9. Diversifying labour force	3	0	2	9	...
10. Specializing labour force	8	11	9	2	...
11. Continuous labour force diversification over the four inter-censal periods	...	...	...	...	0
12. Continuous labour force specialization over the four inter-censal periods	...	...	...	...	1
	Number of census consolidated subdivisions (CCSs)				
13. Diversifying labour force	34	28	17	63	...
14. Specializing labour force	45	51	62	16	...
15. Continuous labour force diversification over the four inter-censal periods	...	...	...	...	1
16. Continuous labour force specialization over the four inter-censal periods	...	...	...	...	3

... not applicable

Source: Statistics Canada, Census of population, 1981 to 2001.

In terms of employment change, more communities grew than declined in the 1980s; but, in the 1990s, more communities declined than grew (compare rows 5 and 6 in Table G). Throughout the 1981 to 2001 period, 15 communities reported employment growth in each inter-censal period and only 2 reported employment declines in each inter-censal period (compare rows 7 and 8 in Table G).

In terms of change in the level of specialization or diversification, more communities specialized than diversified in each inter-censal period from 1981 to 1996; but, in the 1996 to 2001 period, more communities diversified than specialized (compare rows 13 and 14 in Table G). Only three communities reported a continuous path of specialization in each inter-censal period and only one community reported continuous diversification over this period (compare rows 15 and 16 in Table G).

3.3 Skill factors

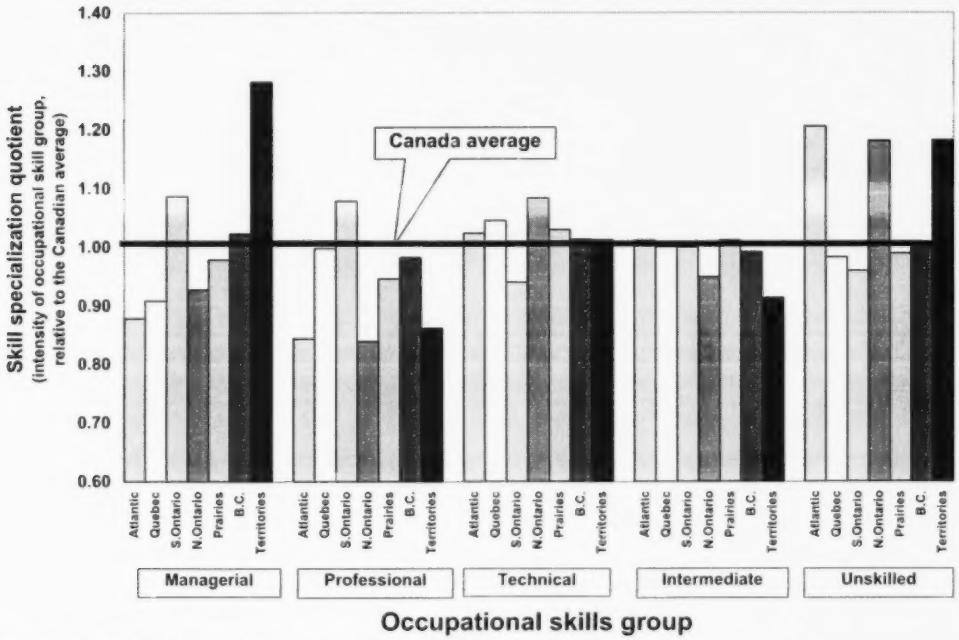
- **Occupational skills of Northern Ontario — high in technical and unskilled; low in managerial, professional and intermediate**

Differences in occupational staffing within industries across regions will influence the inter-relationship between patterns of economic diversification and employment change (Dissart, 2003). For example, two regions may have the same share of employment in a given sector, but one region's sector may be largely staffed with "head office workers" and the same industry in the other region may be largely staffed with "production workers." In other words, there may be a difference in occupational skill level. Measuring diversity purely in terms of employment by industrial sector will miss

the influence that occupational skill level has on regional patterns of employment growth and decline. In this section, a skill specialization quotient (SSQ) (Box 3) is used to compare the intensity of different occupational skill classes in a region to that of the national average.

Northern Ontario has a lower proportion of its employment in the managerial and professional skill categories compared to the Canadian average[7] (Figure 16). There is a higher than average share of workers in Northern Ontario with technical skills while the share of workers with intermediate skills is slightly lower. In addition, Northern Ontario has a much higher proportion of unskilled employees compared to the national average.

Figure 16 Northern Ontario has a relatively high intensity of employment in the "Technical" and "Unskilled" occupational skills groups, 2001



Source: Statistics Canada, Census of population, 2001.

Consistent with the overall pattern for Northern Ontario, each region in Northern Ontario has a lower than average share of employment in the "professional" occupational skills group and a higher than average share of employment in the "unskilled" group (Table H). However, for each of the other occupational skills groups, some Northern Ontario census divisions are above the Canadian average level of intensity and some are below. For example, Cochrane District has the lowest

7. The allocation of specific occupations to each occupation skills groups is documented in Human Resources Development Canada (2001) and Alasia and Magnusson (2005).

intensity of employment in the "managerial" occupational skills group (an SSQ of 0.75 in 2001) and Parry Sound District has the highest intensity (an SSQ of 1.16 in 2001) in this skills group.

Table H Skill specialization quotient, Northern Ontario census divisions, 1991, 1996 and 2001

Region (CD)	Occupational skills group														
	Managerial			Professional			Technical			Intermediate			Unskilled		
	1991	1996	2001	1991	1996	2001	1991	1996	2001	1991	1996	2001	1991	1996	2001
	Skill specialization quotient														
3544 Muskoka District Municipality	1.07	1.12	1.10	0.85	0.77	0.81	1.09	0.99	1.04	0.97	0.99	0.96	1.03	1.17	1.08
3548 Nipissing District	0.96	0.92	1.04	0.82	0.80	0.85	1.06	1.06	0.99	1.09	1.02	1.00	1.12	1.10	1.16
3549 Parry Sound District	1.12	1.10	1.16	0.76	0.77	0.78	1.10	1.05	1.08	0.97	0.97	0.93	1.11	1.09	1.10
3551 Manitoulin District	1.16	0.97	1.20	0.88	0.85	0.82	0.98	1.00	1.01	0.95	0.99	0.91	1.22	1.15	1.26
3552 Sudbury District	0.91	0.82	0.92	0.76	0.77	0.68	1.12	1.14	1.15	1.06	0.91	0.93	1.20	1.22	1.22
3553 Sudbury Regional Municipality	0.84	0.86	0.93	0.92	0.88	0.84	1.13	1.12	1.06	1.01	0.97	0.97	1.02	1.02	1.18
3554 Timiskaming District	0.92	1.08	0.96	0.86	0.85	0.81	1.03	1.09	1.11	1.05	0.94	0.95	1.08	1.06	1.14
3556 Cochrane District	0.74	0.87	0.75	0.84	0.86	0.83	1.13	1.12	1.10	0.99	0.90	0.97	1.22	1.18	1.23
3557 Algoma District	0.87	0.80	0.81	0.86	0.91	0.92	1.14	1.10	1.09	1.07	0.91	0.92	1.13	1.22	1.22
3558 Thunder Bay District	0.86	0.85	0.83	0.84	0.90	0.89	1.15	1.10	1.13	1.08	0.96	0.94	1.09	1.10	1.15
3559 Rainy River District	0.97	0.91	0.96	0.74	0.75	0.67	1.12	1.11	1.13	1.04	0.94	0.94	1.17	1.21	1.27
3560 Kenora District	1.03	1.12	1.09	0.64	0.74	0.72	1.13	1.06	1.12	1.08	0.95	0.89	1.15	1.19	1.27

Source: Statistics Canada, Census of population, 1991 to 2001.

To investigate the situation in Northern Ontario's major towns and cities an analysis of the skill levels by Census Metropolitan Area and Census Agglomeration (CMA/CA) was performed (Box 4). The same general conclusion was found. In 1996, with the exception of the managerial skill group in Haileybury, all major towns and cities had a lower intensity of employment in professional jobs and a higher intensity of jobs in unskilled occupations than major towns and cities within Canada as a whole (Table I). Sault Ste. Marie had the lowest proportion of employment with managerial skills (lower by 25 percent) and the highest proportion of employees in the unskilled category (higher by 25 percent). Kenora had an exceptionally low proportion of employment in the professional skills category (35 percent below the national average).

Table I Skill specialization quotient, Northern Ontario CMAs and CAs, 1996

CMA/CA	Occupational skills group				
	Managerial	Professional	Technical	Intermediate	Unskilled
	Skill specialization quotient				
Greater Sudbury	0.83	0.84	1.14	0.99	1.06
Thunder Bay	0.82	0.89	1.10	0.98	1.12
Elliot Lake	0.90	0.90	1.13	0.88	1.15
North Bay	0.97	0.80	1.08	1.03	1.07
Haileybury	1.06	0.86	1.10	0.93	1.06
Timmins	0.85	0.86	1.15	0.95	1.06
Sault Ste. Marie	0.75	0.90	1.13	0.90	1.25
Kenora	0.87	0.65	1.13	1.01	1.19

Source: Statistics Canada, Census of population, 1996.

- **Higher proportion of female managers in Northern Ontario regions**

A comparison of the SSQs by gender for each region of Northern Ontario, drew a number of conclusions (Table J). In 2001, it was found that:

— The proportion of the labour force with professional skills was below the national average for both females and males in each census division of Northern Ontario. In addition, males recorded a lower intensity than females in each census division;

— In two-thirds of census divisions, managerial skill intensity was equal or higher than the national average for females. For males, this was true for only one-third of the census divisions;

— All census divisions were approximately equal to the national average for both genders in the intensity of technical skills;

— In 2001, all the census divisions (with the exception of Nipissing District for females) were below the national average for both genders in the intensity of intermediate skills;

— All regions of Northern Ontario were above the Canadian average for intensity of unskilled labour. The highest intensity for females was Kenora District (28 percent above the national average) and for males it was Manitoulin District (50 percent above the national average).

The total number of persons in the labour force by skill level and gender for each census division in the years 1991, 1996 and 2001 is summarized in Appendix E.

Table J Skill specialization quotient by occupational skills group by gender, Northern Ontario, 1991, 1996 and 2001

Region (CD)	1991									
	Females					Males				
	Managerial	Professional	Technical	Intermediate	Unskilled	Managerial	Professional	Technical	Intermediate	Unskilled
	Skill specialization quotient									
Muskoka District Municipality	1.10	0.87	1.05	1.00	1.00	1.06	0.83	1.11	0.84	1.07
Nipissing District	0.90	0.89	1.07	1.01	1.03	0.98	0.75	1.05	0.98	1.18
Parry Sound District	1.17	0.92	1.11	0.89	1.10	1.09	0.60	1.09	0.94	1.11
Manitoulin District	1.63	0.98	1.00	0.97	0.92	0.96	0.74	0.95	0.94	1.50
Sudbury District	1.17	0.88	1.01	0.91	1.23	0.84	0.66	1.16	0.91	1.20
Sudbury Regional Municipality	0.90	0.87	1.02	1.05	1.04	0.82	1.01	1.19	0.83	1.03
Timiskaming District	0.97	0.91	1.05	0.98	1.08	0.89	0.82	1.02	1.05	1.08
Cochrane District	0.85	0.90	1.08	0.95	1.18	0.71	0.78	1.16	0.88	1.25
Algoma District	1.02	0.88	1.02	0.99	1.10	0.81	0.85	1.21	0.83	1.15
Thunder Bay District	0.97	0.87	1.03	1.01	1.10	0.82	0.81	1.22	0.87	1.08
Rainy River District	1.04	0.83	1.14	0.93	1.11	0.94	0.64	1.11	0.94	1.19
Kenora District	1.08	0.72	1.05	1.05	1.11	1.00	0.57	1.17	0.91	1.17
	1996									
	Females					Males				
	Managerial	Professional	Technical	Intermediate	Unskilled	Managerial	Professional	Technical	Intermediate	Unskilled
	Skill specialization quotient									
Muskoka District Municipality	1.21	0.79	1.04	0.96	1.13	1.08	0.72	0.96	1.00	1.20
Nipissing District	1.01	0.82	1.09	1.04	0.98	0.87	0.77	1.04	1.02	1.20
Parry Sound District	1.22	0.75	1.07	0.98	1.10	1.04	0.77	1.04	0.98	1.10
Manitoulin District	1.20	0.94	1.00	0.90	1.16	0.87	0.75	0.97	1.06	1.19
Sudbury District	1.04	0.89	1.12	0.92	1.14	0.75	0.67	1.15	0.90	1.30
Sudbury Regional Municipality	0.88	0.88	1.05	1.04	1.02	0.87	0.91	1.15	0.90	1.03
Timiskaming District	1.07	0.92	1.09	0.94	1.08	1.13	0.78	1.08	0.92	1.03
Cochrane District	1.03	0.90	1.09	0.95	1.09	0.81	0.84	1.15	0.84	1.26
Algoma District	0.91	0.88	1.03	0.98	1.15	0.75	0.96	1.14	0.83	1.27
Thunder Bay District	0.91	0.92	0.98	1.01	1.13	0.83	0.88	1.16	0.91	1.07
Rainy River District	0.91	0.79	1.20	0.91	1.15	0.92	0.73	1.05	0.94	1.25
Kenora District	1.16	0.85	1.04	1.00	1.07	1.10	0.62	1.07	0.91	1.30
	2001									
	Females					Males				
	Managerial	Professional	Technical	Intermediate	Unskilled	Managerial	Professional	Technical	Intermediate	Unskilled
	Skill specialization quotient									
Muskoka District Municipality	1.17	0.85	1.11	0.93	1.06	1.08	0.76	1.01	0.98	1.10
Nipissing District	1.02	0.86	1.02	1.03	1.05	1.04	0.84	0.97	0.97	1.25
Parry Sound District	1.17	0.85	1.18	0.88	1.10	1.15	0.72	1.03	0.96	1.09
Manitoulin District	1.54	0.84	1.07	0.90	1.02	1.01	0.80	0.97	0.89	1.50
Sudbury District	1.00	0.78	1.14	0.92	1.23	0.89	0.61	1.15	0.92	1.19
Sudbury Regional Municipality	0.92	0.88	1.06	0.98	1.17	0.94	0.82	1.05	0.95	1.20
Timiskaming District	1.05	0.86	1.16	0.93	1.06	0.94	0.76	1.07	0.94	1.23
Cochrane District	0.84	0.90	1.08	0.95	1.19	0.72	0.77	1.10	0.96	1.27
Algoma District	0.84	0.98	1.07	0.93	1.17	0.79	0.87	1.10	0.91	1.27
Thunder Bay District	0.90	0.93	1.08	0.96	1.13	0.80	0.85	1.15	0.91	1.16
Rainy River District	1.18	0.76	1.18	0.91	1.14	0.84	0.62	1.10	0.94	1.37
Kenora District	1.28	0.77	0.98	0.97	1.28	0.99	0.68	1.20	0.81	1.25

Source: Statistics Canada, Census of population, 1991 to 2001

4. Summary and conclusions

Between 1981 and 2001, there was little overall change (only a 4 percent increase) in the level of employment in Northern Ontario. However, the structure of employment changed dramatically. The share of total employment represented by primary and manufacturing industries declined from 28 percent to 16 percent while the share of total employment represented by the service sectors increased from 67 percent to 77 percent.

Among the communities in Northern Ontario, there was a wide range in labour market experience. Of the 79 communities (as defined in this study), 21 communities declined in terms of persons employed while 20 communities saw their employment grow by more than 50 percent over the 1981 to 2001 period.

Over the 1981 to 2001 period, regions specialized somewhat and became more similar in terms of their employment specialization/diversification profile. In addition, communities within these regions also specialized on average and these communities became more similar. However, by 2001, communities within each region still continued to show a considerable range in their level of specialization/diversification. Policy options should consider the economic uniqueness of each community because their economic structure could be different than the region in which they are located.

Among the 79 communities identified in this study, 15 grew in each inter-censal period and only two declined in terms of employment in each inter-censal period. Only three communities economically specialized in every inter-censal period of the study. One community economically diversified in every inter-censal period of the study. Thus, there was neither a continuous pattern of economically diversifying communities nor a continuous pattern of economically specializing communities.

Communities that had a diversified economy in 1981 were more likely to experience employment growth. However, community employment growth was associated with a tendency towards economic specialization over time.

Each region in Northern Ontario has a lower than average share of employment in the "professional" occupational skills group and a higher than average share of workers in the "unskilled" occupational skills group. Thus, even if the mix of employment by industry stays the same, the changes in the skill mix within industries may be a factor requiring attention in regional development initiatives.

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Appendix A Structure of total employment by industry (those aged 15 years and over), Census of Population, 1981, 1986, 1991, 1996 and 2001

1996 Census boundaries were used for each CD and CCS. The 1970 SIC was used in tabulating the 1981 Census of Population and the 1980 SIC was used for each of the 1986, 1991, 1996 and 2001 Censuses of Population.

1980 SIC	1970 SIC
1 Primary Industry – excluding incidental services	Major Groups 2, 3, 9
A. Agricultural and related Industries	Division 1 (exclude Major Group 3)
B. Fishing and Trapping	Division 3
C. Logging and Forestry	Division 2 (exclude Major Group 2)
D. Mining, Quarrying and Oil Wells	Division 4 (exclude Major Group 5)
2 Traditional Manufacturing	Division 5
Agricultural MfgT – 10, 11, 12, 151, 153, 17,182	Major Group 1; 101, 103 –(exclude 102) –108, 109; Major Group 2; 151, 153 Major Group 4; 182 – wool yarn and cloth mills
Fishing MfgT – 102 – fish products industry	Major Group 1; 102
Forestry MfgT– 25, 27	Major Group 8; Major Group 10
Mining MfgT – 15 (exclude 151, 153), 16	Major Group 3; (exclude 151, 153), 162; Major Group 3; 165; Major Group 10; 273
Other MfgT – 18 (exclude 182), 19, 24, 26	Major Group 5; 181, 183; Major Group 5; 184 to 189; Major Group 6; Major Group 7; Major Group 9
3 Complex Manufacturing	
Agriculture MfgC – 311, 372	Major Group 14; 311, 372
Printing – 28	Major Group 11 Division 10, Major Group 8, 893
Metals Mfg. – 29, 30, 31 (exclude 311), 32, 33, 39	Major Group 12; Major Group 13; Major Group 14 (exclude 311) Major Group 15; Major Group 16; Major Group 20
Non-metals Mfg. – 35, 36, 37 (exclude 372)	Major Group 17; Major Group 18; Major Group 19 (exclude 372)
4 Construction	Division 6 (exclude incidental services – Major Group 44)
5 Distributive Services	
G. Transportation and Storage plus	Division 7, Major Group 1, Major Group 2
H. Communication and Other Utilities plus	Division 7, Major Group 3, Major Group 4
I. Wholesale Trade Industries plus	Division 8, Major Group 1
J. Retail Trade Industries	Division 8, Major Group 2
6 Producer Services	
K. Finance and Insurance Industries plus	Division 9, Major Group 1, Division 9, Major Group 2
L. Real Estate Operator and Insurance Agent Industries plus	Division 9, Major Group 3
M. Business Service Industries plus	Division 10, Major Group 5
Service Industries incidental to	
A. Agriculture – Major Group 2	Division 1, Major Group 3
C. Forestry – Major Group 5	Division 2, Major Group 2
D. Mineral Extraction – Major Group 9	Division 4, Major Group 5
7 Personal Services	
Q. Accommodation, Food and Beverage Service Industries plus	Division 10, Major Group 7
R. Other Service Industries (includes amusement, recreation, personal services, employees of associations, leasing services, travel services, etc.	Division 10, Major Group 3, 4, 6, 8
8 Social Services	
N. Government Service Industries plus	Division 11
O. Educational Service Industries plus	Division 10, Major Group 1
P. Health and Social Service Industries	Division 10, Major Group 2

Appendix B Community diversification/specialization and labour force growth/decline

Table B1 Patterns of diversification/specialization and labour force growth/decline, 1981 to 2001 (continued)

Communities (CCSs) and regions (CDs)	Five-year periods								Ten-year period		Twenty- year period	
	1981 to 1986		1986 to 1991		1991 to 1996		1996 to 2001		1991 to 2001		1981 to 2001	
	HI	LF	HI	LF	HI	LF	HI	LF	HI	LF	HI	LF
3544002 Gravenhurst	DI	+	S	+	DI	-	DI	+	DI	+	S	+
3544018 Bracebridge	S	+	S	+	DI	+	DI	+	DI	+	DI	+
3544027 Lake of Bays	S	+	DI	+	DI	-	DI	+	DI	+	S	+
3544042 Huntsville	S	+	S	+	S	+	DI	+	DI	+	S	+
3544053 Muskoka Lakes	S	+	DI	+	DI	+	S	+	S	+	S	+
3544065 Georgian Bay	S	+	DI	+	S	-	DI	-	DI	-	DI	-
3544000 ONT CD 44 Muskoka District Municipality	**S**	**+**	**S**	**+**	**DI**	**+**	**DI**	**+**	**DI**	**+**	**S**	**+**
3548013/22 Papineau-Cameron/Calvin (aggregated)	S	-	DI	+	S	-	DI	+	DI	+	DI	+
3548019 Mattawan	S	+	S	+	S	-	DI	-	S	-	S	-
3548027 Bonfield	DI	+	S	+	DI	-	S	+	DI	+	DI	+
3548031 Chisholm	S	+	DI	+	DI	+	S	+	DI	+	S	+
3548034 East Ferris	DI	+	DI	+	S	+	DI	+	S	+	DI	+
3548051 Springer	S	+	S	+	S	-	DI	+	S	-	S	+
3548058 Caldwell	S	-	S	+	S	+	S	-	S	+	S	+
3548091 Nipissing, Unorganized	S	+	S	-	S	+	DI	-	DI	+	S	-
3548094 Nipissing, Unorganized	S	+	S	+	S	-	DI	-	DI	-	S	+
3548000 ONT CD 48 Nipissing District	**S**	**+**	**S**	**+**	**S**	**-**	**DI**	**+**	**DI**	**-**	**S**	**+**
3549001 Humphrey	S	+	S	+	S	-	DI	+	DI	+	DI	+
3549005 The Archipelago	S	+	DI	+	DI	-	DI	-	DI	-	S	+
3549006 Foley	S	+	S	+	DI	+	S	-	S	+	S	+
3549012/24/42 McMurrich/Ryerson/Chapman (aggregated)	S	+	DI	+	S	-	DI	+	S	-	S	+
3549009/28/39 Chrstie/McKeller/Hagerman (aggregated)	S	+	DI	+	S	+	S	+	S	+	S	+
3549014/18/51/95 Perry/Kearny/Joly/Parry Sound, Unorganized (aggregated)	S	+	DI	+	S	+	DI	+	S	+	S	+
3549019 Armour	DI	+	DI	+	S	+	DI	-	DI	+	DI	+
3549031 McDougall	S	-	S	+	S	-	DI	+	S	-	S	+
3549046 Strong	S	+	DI	+	S	+	DI	+	S	+	S	+
3549054 Machar	S	+	DI	+	S	-	DI	-	DI	-	S	-
3549059 South Himsworth	S	+	S	+	DI	-	DI	+	DI	+	DI	+
3549066 North Himsworth	S	-	DI	+	S	+	DI	+	S	+	S	+
3549071 Nipissing	DI	+	S	+	S	+	S	+	S	+	S	+
3549096 Parry Sound, Unorgan	DI	+	S	+	DI	+	DI	-	DI	+	DI	+
3549000 ONT CD 49 Parry Sound District	**S**	**+**	**S**	**+**	**S**	**+**	**DI**	**+**	**DI**	**+**	**S**	**+**
3551001/4/8/11 Tehkummah/Camorvon/Sandfield/Assiginack (aggregated)	S	+	S	+	DI	+	DI	+	DI	+	S	+
3551016 Howland	S	+	S	+	DI	+	S	+	DI	+	S	+
3551021/28/31/91/94 Billings/Burpee/Barrie Is./Manitoulin, Unorganized/ Manitoulin, Unorganized (aggregated)	DI	+	DI	+	S	-	DI	+	S	+	S	+
3551024 Gordon	DI	+	S	+	S	-	S	+	S	+	S	+
3551092 Manitoulin, Unorganized	DI	+	S	+	S	+	DI	-	S	+	DI	+
3551000 ONT CD 51 Manitoulin District	**S**	**+**	**S**	**+**	**DI**	**+**	**S**	**+**	**S**	**+**	**S**	**+**
3552001 Cosby, Mason and Mar	DI	+	S	+	S	+	DI	-	S	-	S	+
3552041/2 Casmir/Jennings/Hagar	S	-	DI	+	S	-	DI	+	S	-	S	+
3552008 Ratter and Dunnet	DI	-	DI	+	S	-	S	-	S	-	DI	-
3552020 The Spanish River	DI	+	S	+	S	-	DI	-	S	-	S	-
3552093 Sudbury, Unorganized	S	-	S	+	S	-	DI	+	S	-	S	+

Table B1 Patterns of diversification/specialization and labour force growth/decline, 1981 to 2001 (end)

Communities (CCSs) and regions (CDs)	Five-year periods								Ten-year period		Twenty-year period	
	1981 to 1986		1986 to 1991		1991 to 1996		1996 to 2001		1991 to 2001		1981 to 2001	
	HI	LF	HI	LF	HI	LF	HI	LF	HI	LF	HI	LF
3552000 ONT CD 52 Sudbury District	**DI**	**+**	**S**	**+**	**S**	**-**	**DI**	**+**	**S**	**-**	**S**	**+**
3553001 Nickel Centre	S	-	S	+	S	+	S	+	S	+	S	+
3553007 Sudbury	S	-	S	+	S	-	S	-	S	-	S	-
3553012 Walden	DI	-	S	+	S	+	S	-	S	-	S	+
3553019 Onaping Falls	DI	-	DI	+	S	-	DI	-	S	-	DI	-
3553024 Rayside-Balfour	DI	+	S	+	S	-	DI	-	S	-	DI	+
3553028 Valley East	S	-	S	+	S	+	DI	-	DI	+	S	+
3553035 Capreol	DI	+	DI	+	DI	-	DI	-	DI	-	DI	+
3553000 ONT CD 53 Sudbury Regional Municipality	**S**	**-**	**S**	**+**	**S**	**-**	**S**	**-**	**S**	**-**	**S**	**+**
3554012 Haileybury	S	+	S	+	S	-	DI	-	S	-	S	-
3554014/29/32/43 Harris/Casey/Brethor/Hillard (aggregated)	S	+	S	-	S	+	DI	-	DI	+	S	+
3554016 Dymond	DI	+	S	+	S	-	DI	-	S	-	S	-
3554021/24/26 Hudson/Kerns/Harley (aggregated)	DI	+	S	+	S	+	DI	+	S	+	S	+
3554036 Armstrong	DI	+	DI	-	S	+	DI	-	S	-	DI	+
3554046/49/54 Dack/Evanturel/Chamberlain (aggregated)	S	+	S	-	S	-	DI	+	DI	+	S	+
3554058 McGarry	S	-	DI	-	S	-	DI	-	S	-	DI	-
3554094 Timiskaming, Unorganized	S	+	S	-	S	-	DI	-	DI	-	S	-
3554000 ONT CD 54 Timiskaming District	**S**	**+**	**S**	**-**	**S**	**-**	**DI**	**-**	**S**	**-**	**S**	**-**
3556014 Black River-Matheson	DI	+	S	+	S	-	DI	-	S	-	S	-
3556027 Timmins	DI	+	S	+	S	-	S	-	S	-	S	+
3556031 Iroquois Falls	DI	-	DI	+	S	-	DI	-	DI	-	DI	-
3556092 Cochrane, Unorganized	DI	-	S	-	S	-	DI	-	DI	-	S	-
3556000 ONT CD 56 Cochrane District	**DI**	**+**	**S**	**+**	**S**	**-**	**DI**	**-**	**S**	**-**	**S**	**-**
3557001/4/8 Jocelyn/Hilton/St. Joseph (aggregated)	DI	+	S	+	DI	-	DI	+	DI	+	DI	+
3557011/14/16 Laird/Tarbutt/Johnson (aggregated)	DI	+	S	+	S	-	DI	-	DI	-	DI	+
3557019 Plummer Additional	S	+	DI	+	S	+	DI	-	S	-	S	+
3557024 Thessalon	S	-	DI	+	S	-	DI	+	DI	-	S	-
3557029/34 Day and Bright Addit/Thompson (aggregated)	S	-	S	-	S	-	DI	+	DI	-	DI	-
3557051/74 Macdonald, Meredith/Garden River (latter not incl in 1991, 1996) (aggregated)	DI	-	S	-	S	+	DI	+	DI	+	DI	+
3557061 Sault Ste. Marie	DI	-	S	+	S	-	DI	-	S	-	S	-
3557095 Algoma, Unorganized	DI	+	S	-	S	-	DI	-	S	-	DI	-
3557000 ONT CD 57 Algoma District	**S**	**-**	**S**	**-**	**S**	**-**	**DI**	**-**	**S**	**-**	**S**	**-**
3558001 Neebing	S	+	DI	+	S	+	DI	+	DI	+	DI	+
3558005 Thunder Bay	DI	+	S	+	S	-	DI	-	S	-	S	-
3558008 Paipoonge	S	+	DI	+	S	+	DI	+	S	+	S	+
3558016/19 O'Connor/Conmee (aggregated)	DI	+	S	+	DI	+	DI	+	DI	+	S	+
3558024 Oliver	S	+	S	+	DI	+	S	-	S	+	S	+
3558090 Thunder Bay, Unorganized	DI	+	S	+	S	-	DI	-	DI	-	DI	+
3558000 ONT CD 58 Thunder Bay District	**DI**	**+**	**S**	**+**	**S**	**-**	**DI**	**-**	**S**	**-**	**S**	**-**
3559011 Alberton	S	+	DI	+	S	+	DI	-	S	+	S	+
3559016 La Vallee	DI	+	S	+	S	+	S	-	S	-	S	+
3559019/22 Emo/Kingsford (aggregated)	S	+	DI	+	S	-	DI	+	DI	+	S	+
3559024 Chapple	DI	-	S	+	S	+	DI	+	DI	+	DI	+
3559031/34/36/39/41 Morley/Dike/Worthington/Blue/Atwood (aggregated)	DI	-	S	+	DI	-	DI	-	DI	-	DI	-
3559090 Rainy River, Unorganized	S	+	S	-	S	-	DI	-	S	-	S	-
3590000 ONT CD 59 Rainy River District	**S**	**+**	**S**	**+**	**S**	**+**	**DI**	**-**	**DI**	**-**	**S**	**+**
3560090 Kenora, Unorganized	S	-	S	+	S	+	DI	+	DI	+	S	+
3560000 ONT CD 60 Kenora District	**S**	**-**	**S**	**+**	**S**	**+**	**DI**	**+**	**DI**	**+**	**S**	**+**

Notes: HI Herfindahl Index
LF Labour force
DI Diversifying economy
S Specializing economy
\+ Labour force increase
\- Labour force decrease

Source: Statistics Canada, Census of population, 1981 to 2001

Table B2 Number of communities diversifying/specializing with labour force growth/decline, 1981 to 2001

Employment characteristics	Five-year periods				Ten-year period	Twenty-year period
	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1991 to 2001	1981 to 2001
	Total					
Diversifying with growing labour force	28	26	11	34	26	18
Diversifying with declining labour force	9	2	8	38	15	8
Specializing with growing labour force	38	51	28	9	18	46
Specializing with declining labour force	15	11	43	9	31	18
	Census consolidated subdivisions (CCSs) only					
Diversifying with growing labour force	24	14	14	30	24	18
Diversifying with declining labour force	10	1	1	33	13	8
Specializing with growing labour force	32	54	54	8	17	39
Specializing with declining labour force	13	10	10	8	25	14
	Census Divisions (CDs) only					
Diversifying with growing labour force	3	0	2	4	2	0
Diversifying with declining labour force	0	0	0	5	2	0
Specializing with growing labour force	6	9	2	1	1	7
Specializing with declining labour force	2	2	7	1	6	4

Source: Statistics Canada, Census of population, 1981 to 2001.

Appendix C Employment structure and trends in the larger cities of Northern Ontario

In Northern Ontario, there are eight towns and cities that are either Census Metropolitan Areas (CMAs) or Census Agglomerations (CAs) (Table C 1). Note that the population attributed to each CMA and CA includes the population in all surrounding towns and municipalities where more than 50 percent of the workforce commutes to the urban core of the CMA or CA. Each of these CMAs/CAs lost population in the 1996 to 2001 period.

Table C1 Population of Census Metropolitan Areas and Census Agglomerations in Northern Ontario, 1996 to 2001

	1996	2001	Percent change 1996 to 2001
Sudbury	165,618	155,601	-6.0
Thunder Bay	126,643	121,986	-3.7
Sault Ste. Marie	83,619	78,908	-5.6
North Bay	64,785	63,681	-1.7
Timmins	47,499	43,686	-8.0
Kenora	16,365	15,838	-3.2
Haileybury	13,712	12,867	-6.2
Elliot Lake	13,588	11,956	-12.0

Note: The 1996 population and the change in population from 1996 and 2001 is shown according to the 2001 boundaries of the CMA and CA.
Source: Statistics Canada, Census of population, 1996 and 2001

This report uses the census consolidated subdivision (CCS) as the unit of analysis. In some cases, the CCS is closely related to the CMA or CA. In other cases, towns and municipalities that are part of the CMA or CA are designated as separate CCSs. This is particularly apparent in Kenora. The CA of Kenora has little relationship to the CCS of Kenora because the CCS is, in fact, the whole census division or District of Kenora. In addition, the structure and trends in the CCS may or may not correlate with the exact experience of citizens living in these cities.

Sudbury[8]

Sudbury is the largest city in Northern Ontario. Between 1996 and 2001, the population of Sudbury declined by 6 percent (Table C1). During the same period, the experienced workforce of the Sudbury CCS declined by 5 percent (Table C2). Employment in Sudbury grew in only one inter-censal period during the study period. The experienced workforce grew 10 percent between 1986 and 1991 as growth in the social services sector outstripped declines in mining. Over the twenty year period from 1981 to 2001, employment in mining and employment in metals manufacturing both declined by 66 percent. Meanwhile, employment in social services grew by 22 percent. The overall result was a decline in the workforce of 5 percent from 1981 to 2001.

8. The CCS and the CSD (census subdivision) of Sudbury are the same geographic area. The CMA of Greater Sudbury includes the CSD of Greater Sudbury plus two small CSDs: Wahnapitei 11 and Whitefish Lake 6 (Statistics Canada, 2002, Table 4).

Table C2 Experienced workforce by industry sector, Sudbury CCS, 1981 to 2001

Industry sector	Experienced workforce																
	Number					Percent distribution across industrial sectors					Percent growth/decline over time						
	1981	1986	1991	1996	2001	1981	1986	1991	1996	2001	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1981 to 1991	1991 to 2001	1981 to 2001
Primary industries																	
All primary	5,730	3,080	3,130	2,615	2,020	13	7	7	6	5	-47	2	-16	-23	-45	-35	-65
Agriculture and related	90	65	65	60	75	0	0	0	0	0	6	-32	-8	25	-28	15	-17
Fishing and trapping	0	0	10	0	10	0	0	0	0	0							
Logging and forestry	20	50	30	10	0	0	0	0	0	0	150	-40	-67	-100	50	-100	-100
Mining, quarrying and oil wells	5,620	2,920	3,030	2,540	1,930	13	7	6	6	5	-48	4	-16	-24	-46	-36	-66
Traditional manufacturing																	
All traditional manufacturing	630	625	400	495	605	1	1	1	1	1	-1	-36	24	22	-37	51	-4
Agricultural manufacturing	370	405	210	235	235	1	1	0	1	1	9	-48	12	0	-43	12	-36
Fishing manufacturing	0	0	0	0	0	0	0	0	0	0							
Forestry manufacturing	125	110	110	135	210	0	0	0	0	1	-12	0	23	56	-12	91	68
Mining manufacturing	95	85	10	75	95	0	0	0	0	0	-32	-85	650	27	-89	850	0
Other manufacturing	35	50	65	50	65	0	0	0	0	0	43	30	-23	30	86	0	86
Complex manufacturing																	
All complex manufacturing	4,385	3,355	3,165	2,200	1,680	10	8	7	5	4	-23	-6	-30	-24	-28	-47	-62
Agricultural manufacturing	10	10	0	0	0	0	0	0	0	0							
Printing	400	305	330	305	275	1	1	1	1	1	-24	8	-8	-10	-18	-17	-31
Metals manufacturing	3,695	2,880	2,580	1,600	1,260	9	7	5	4	3	-23	-10	-38	-21	-30	-51	-66
Non-metals manufacturing	285	180	255	290	135	1	0	1	1	0	-37	42	14	-53	-11	-47	-53
Construction	2,450	2,155	3,250	2,395	2,330	6	5	7	6	6	-12	51	-26	-3	33	-28	-5
Distributive services	10,845	10,675	11,230	11,130	10,875	25	25	24	26	26	-2	5	-1	-2	4	-3	0
Producer services	3,375	3,850	4,890	4,520	5,035	8	9	10	10	12	14	27	-8	11	45	3	49
Personal services	5,860	6,380	6,620	7,110	6,315	13	15	14	16	15	9	4	7	-11	13	-5	8
Social services	10,170	12,780	14,690	12,825	12,380	23	30	31	30	30	25	15	-13	-3	44	-16	22
All industries	43,445	42,870	47,370	43,285	41,240	100	100	100	100	100	-1	10	-9	-5	9	-13	-5
Herfindahl Index (for Sudbury CCS)	0.189	0.193	0.194	0.200	0.204												
Herfindahl Index (for the CD in which the CCS is located)	0.166	0.182	0.187	0.190	0.195												

Note: Due to rounding, figures may not sum to totals.
not applicable
Source: Statistics Canada, Census of population, 1981 to 2001.

The large change in the structure of the Sudbury workforce caused the HI to increase, indicating an increase in specialization of the workforce. Importantly, employment in producer services (as defined for this study, see Footnote 1) grew by 49 percent, from a share of 8 percent of the workforce to 12 percent by 2001. This is considerably higher than the 8 percent of the workforce in mining and smelting. Producer services are a potentially exportable service, that is, they can be sold outside the region. Hence, growth in their share of total employment is an important contribution to the (potential) export base of a region. Producer services are, generally, services provided to businesses. They include various financial services (banks, insurance agencies, real estate agencies), consultancy and managerial services and services incidental to the agriculture, forestry and mining sectors.

Thunder Bay [9]

Thunder Bay is the second largest metropolitan area in Northern Ontario. Between 1996 and 2001, the population decline in the Thunder Bay CMA was 3.7 percent (Table C1). The experienced workforce in the Thunder Bay CCS declined 4 percent in the same period (Table C3).

Similar to the experience of Sudbury, employment grew in the 1980s due to a strong growth in producer services, personal services and social services. However, this pattern changed in the 1990s with much lower growth in producer and personal services and a contraction in social services. Allied to ongoing losses in the primary and manufacturing industries, this resulted in an overall employment decline of 9 percent in the 1990s. Over the 1981 to 2001 period, employment declined 5 percent.

Over the twenty year period from 1981 to 2001, forestry manufacturing declined 40 percent and metals manufacturing declined 33 percent. Producer services showed a particularly strong employment increase (up 41 percent between 1981 and 2001) and employment in this sector represented 11 percent of Thunder Bay's experienced workforce in 2001.

Table C3 Experienced workforce by industry sector, Thunder Bay CCS, 1981 to 2001

Industry sector	Experienced workforce																
	Number					Percent distribution across industrial sectors					Percent growth/decline over time						
	1981	1986	1991	1996	2001	1981	1986	1991	1996	2001	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1981 to 1991	1991 to 2001	1981 to 2001
Primary industries																	
All primary	1,310	1,555	1,120	1,025	1,000	2	3	2	2	2	19	-28	-8	-2	-15	-11	-24
Agriculture and related	220	290	270	280	155	0	1	0	0	0	32	-7	4	-40	23	-43	-30
Fishing and trapping	30	5	0	10	40	0	0	0	0	0	-83	-100		300	-100		33
Logging and forestry	780	1,085	605	540	530	1	2	1	1	1	39	-44	-11	-2	-22	-12	-32
Mining, quarrying and oil wells	280	175	240	220	270	0	0	0	0	0	-38	37	-8	23	-14	13	-4
Traditional manufacturing																	
All traditional manufacturing	6,620	5,825	4,775	3,940	3,750	12	10	8	7	7	-12	-18	-17	-5	-28	-21	-43
Agricultural manufacturing	820	800	525	420	280	1	1	1	1	1	-2	-34	-20	-33	-36	-47	-66
Fishing manufacturing	0	0	10	0	0	0	0	0	0	0							
Forestry manufacturing	5,605	4,835	4,055	3,375	3,370	10	8	7	6	6	-14	-16	-17	0	-28	-17	-40
Mining manufacturing	45	50	45	45	55	0	0	0	0	0	11	-10	0	22	0	22	22
Other manufacturing	145	135	145	100	45	0	0	0	0	0	-7	7	-31	-55	0	-69	-69
Complex manufacturing																	
All complex manufacturing	3,245	2,605	2,270	2,235	2,070	6	5	4	4	4	-20	-13	-1	-8	-30	-9	-36
Agricultural manufacturing	105	35	70	25	10	0	0	0	0	0	-67	100	-64	-60	-33	-86	-90
Printing	400	380	350	325	335	1	1	1	1	1	-5	-8	-7	3	-13	-4	-16
Metals manufacturing	2,330	1,925	1,635	1,580	1,555	4	3	3	3	3	-17	-15	-3	-2	-30	-5	-33
Non-metals manufacturing	415	260	210	315	170	1	0	0	1	0	-37	-19	50	-46	-49	-19	-59
Construction	3,620	3,420	3,880	3,725	2,890	6	6	7	7	5	-6	13	-4	-22	7	-26	-20
Distributive services	17,950	17,000	15,930	15,710	14,560	31	29	27	28	27	-5	-6	-1	-7	-11	-8	-19
Producer services	4,060	4,660	5,505	5,000	5,720	7	8	9	9	11	15	18	-9	14	36	4	41
Personal services	6,760	7,730	8,010	8,325	8,505	12	13	13	15	16	14	4	4	2	18	6	26
Social services	13,890	14,855	18,070	16,505	15,900	24	26	30	29	29	7	22	-9	-4	30	-12	14
All industries	57,460	57,655	59,560	56,480	54,405	100	100	100	100	100	0	3	-5	-4	4	-9	-5
Herfindahl Index (for Thunder Bay CCS)	0.191	0.190	0.200	0.201	0.200												
Herfindahl Index (for the CD in which the CCS is located)	0.167	0.173	0.180	0.182	0.180												

Note: Due to rounding, figures may not sum to totals.
.. not applicable
0 true zero or a value rounded to zero
Source: Statistics Canada, Census of population, 1981 to 2001.

9. The CCS and the CSD of Thunder Bay are the same geographic area. The CMA of Thunder Bay includes the CSD of Thunder Bay plus 7 other small CSDs (Statistics Canada, 2002, Table 4).

Note the employment decline in distributive services. In most cities, this group is primarily composed of trucking and wholesale and retail trade. In Thunder Bay, the "transportation and storage" component includes the employment associated with grain terminals. Employment associated with grain terminals has declined substantially in recent years. Overall, employment in distributive trades declined 19 percent in Thunder Bay from 1981 to 2001. The decline in forestry and metals manufacturing, and the overall increase in the services sector has caused the calculated HI to increase (indicating an increase in specialization).

Sault Ste. Marie[10]

Between 1996 and 2001, the population of the Sault Ste. Marie CMA declined by 5.6 percent (Table C1). In the same period, the experienced workforce declined 4 percent in the Sault Ste. Marie CCS (Table C4).

The story for Sault Ste. Marie is very similar to the story for Sudbury and Thunder Bay in terms of employment change and the HI. Total employment grew in only one inter-censal period (up 2 percent between 1986 and 1991), principally due to growth in the services sector. Employment in forestry manufacturing declined by 21 percent between 1981 and 2001 and employment in metals manufacturing declined 64 percent. Overall, employment declined 12 percent in the 1981 to 2001 period. Similar to the other cities, employment in producer services grew 31 percent and, by 2001, represented 10 percent of the experienced workforce in Sault Ste. Marie. The HI indicated specialization due to these employment changes.

10. The CCS and the CSD of Sault Ste Marie are almost the same geographic area and most the population of the CMA of Sault Ste. Marie is in the CSD of Sault Ste. Marie. The CMA of Sault Ste. Marie includes 5 other small CSDs (Statistics Canada, 2002, Table 4).

Table C4 Experienced workforce by industry sector, Sault Ste. Marie CCS, 1981 to 2001

Industry sector	Experienced workforce																
	Number					Percent distribution across industrial sectors					Percent growth/decline over time						
	1981	1986	1991	1996	2001	1981	1986	1991	1996	2001	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1981 to 1991	1991 to 2001	1981 to 2001
Primary industries																	
All primary	380	475	465	265	335	1	1	1	1	1	25	-2	-43	26	22	-28	-12
Agriculture and related	130	125	155	100	75	0	0	0	0	0	-4	24	-35	-25	19	-52	-42
Fishing and trapping	10	20	0	10	30	0	0	0	0	0							
Logging and forestry	75	200	90	70	160	0	1	0	0	0	167	-55	-22	129	20	78	113
Mining, quarrying and oil wells	170	125	215	80	60	0	0	1	0	0	-26	72	-63	-25	26	-72	-65
Traditional manufacturing																	
All traditional manufacturing	1.420	1.090	1.190	915	1.040	4	3	3	2	3	-23	9	-23	14	-16	-13	-27
Agricultural manufacturing	275	170	135	125	120	1	0	0	0	0	-38	-21	-7	-4	-51	-11	-56
Fishing manufacturing	0	5	0	0	0	0	0	0	0	0							
Forestry manufacturing	1.080	850	1.010	745	850	3	2	3	2	2	-21	19	-26	14	-6	-16	-21
Mining manufacturing	5	0	0	20	35	0	0	0	0	0							
Other manufacturing	60	60	50	30	35	0	0	0	0	0	0	-17	-40	17	-17	-30	-42
Complex manufacturing																	
All complex manufacturing	11.920	8.630	6.860	5.275	4.310	30	22	17	14	12	-28	-21	-23	-18	-42	-37	-64
Agricultural manufacturing	5	5	10	0	0	0	0	0	0	0							
Printing	340	230	275	290	200	1	1	1	1	1	-32	20	5	-31	-19	-27	-41
Metals manufacturing	11.380	8.225	6.485	4.865	4.040	28	21	16	13	11	-28	-21	-25	-17	-43	-38	-64
Non-metals manufacturing	185	170	90	115	65	0	0	0	0	0	-8	-47	28	-43	-51	-28	-65
Construction	1.990	2.080	2.095	1.895	1.815	5	5	5	5	5	4	2	-10	-4	5	-13	-9
Distributive services	8.695	9.335	9.135	8.775	8.410	22	24	23	24	24	5	-2	-4	-4	3	-8	-9
Producer services	2.695	3.155	3.250	3.310	3.535	7	8	8	9	10	17	3	2	7	21	9	31
Personal services	5.050	5.775	6.115	6.580	5.810	13	15	15	18	16	14	6	8	-12	21	-5	15
Social services	8.105	9.445	10.425	9.681	10.210	20	22	27	27	29	8	23	-7	5	33	-4	27
All industries	40.385	39.180	39.770	37.110	35.460	100	100	100	100	100	-3	2	-7	-4	-2	-11	-12
Herfindahl Index (for Sault Ste. Marie CCS)	0.191	0.181	0.185	0.190	0.192												
Herfindahl Index (for the CD in which the CCS is located)	0.152	0.156	0.168	0.177	0.180												

Note: Due to rounding, figures may not sum to totals.
not applicable
0 true zero or a value rounded to zero
Source: Statistics Canada, Census of population, 1981 to 2001.

North Bay[11]

Between 1996 and 2001, the population of the North Bay CA declined by 1.7 percent (Table C1). In the same period, the experienced workforce declined 2 percent in the North Bay CCS (Table C5).

The North Bay CCS experienced employment growth in the 1980s and employment declines in the 1990s. Despite the declines in the 1990s, employment was 6 percent higher in 2001 than in 1981.

Between 1981 and 2001, employment declined in traditional manufacturing — with agricultural processing down 24 percent and forestry manufacturing down 36 percent. Complex manufacturing employment increased in the 1980s and declined in the 1990s. By 2001, it was at essentially the same level as in 1981. Social services employment increased by 37 percent in the 1980s and then declined by 16 percent in the 1990s. Employment in producer services increased and in 2001 represented 12 percent of the experienced workforce.

The HI showed increased specialization when employment in social services increased in the 1980s and increased diversification when employment in social services declined in the 1990s.

11. North Bay is part of the CCS of Nipissing Unorganized (North Part). This CCS contains the CSD of North Bay plus the CSDs of Field, Temagami, Bear Island 1 (Native Reserve), Nipissing 10 (Native Reserve), and the surrounding Unorganized territory. In 1996, the population of the CSD - North Bay was 54,300, while the rest of the CSDs within the CCS were 30,500.

Table C5 Experienced workforce by industry sector, North Bay CCS, 1981 to 2001

Industry sector	Experienced workforce																
	Number					Percent distribution across industrial sectors					Percent growth/decline over time						
	1981	1986	1991	1996	2001	1981	1986	1991	1996	2001	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1981 to 1991	1991 to 2001	1981 to 2001
Primary industries																	
All primary	515	510	320	260	320	2	2	1	1	1	-1	-37	-19	23	-38	0	-38
Agriculture and related	170	190	150	135	100	1	1	0	0	0	12	-21	-10	-26	-12	-33	-41
Fishing and trapping	10	15	0	10	10	0	0	0	0	0							
Logging and forestry	55	145	65	50	115	0	1	0	0	0	164	-55	-23	130	18	77	109
Mining, quarrying and oil wells	275	155	105	70	85	1	1	0	0	0	-44	-32	-33	21	-62	-19	-69
Traditional manufacturing																	
All traditional manufacturing	1.555	1.330	1.010	1.055	860	6	5	3	4	3	-14	-24	4	-18	-35	-15	-45
Agricultural manufacturing	310	230	310	325	235	1	1	1	1	1	-26	35	5	-28	0	-24	-24
Fishing manufacturing	0	5	0	0	0	0	0	0	0	0							
Forestry manufacturing	780	840	555	550	500	3	3	2	2	2	8	-34	-1	-9	-29	-10	-36
Mining manufacturing	50	100	100	115	70	0	0	0	0	0							
Other manufacturing	425	160	40	65	50	2	1	0	0	0	-62	-75	63	-23	-91	25	-88
Complex manufacturing																	
All complex manufacturing	1.125	1.150	1.385	1.380	1.150	4	4	5	5	4	2	20	-2	-15	23	-17	2
Agricultural manufacturing	10	10	20	10	0	0	0	0	0	0							
Printing	335	235	215	250	220	1	1	1	1	1	-30	-9	16	-12	-36	2	-34
Metals manufacturing	375	585	865	830	705	1	2	3	3	2	51	53	-4	-15	131	-18	88
Non-metals manufacturing	400	340	285	275	225	2	1	1	1	1	-15	-16	-4	-18	-29	-21	-44
Construction	1.595	1.595	2.050	1.335	1.625	6	6	7	5	6	0	29	-35	22	29	-21	2
Distributive services	8.445	8.245	8.080	8.305	8.085	32	30	27	29	29	-2	-2	3	-3	-4	0	-4
Producer services	2.080	1.995	2.560	2.835	3.345	8	7	8	10	12	-4	28	11	18	23	31	61
Personal services	3.825	4.290	4.585	4.805	4.355	14	16	15	17	15	12	7	5	-9	20	-5	14
Social services	7.430	8.225	10.150	8.760	8.575	28	30	34	31	30	11	23	-14	-2	37	-16	15
All industries	26.575	27.330	30.145	28.720	28.285	100	100	100	100	100	3	10	-5	-2	13	-6	6
Herfindahl Index (for North Bay CCS)	0.212	0.217	0.222	0.218	0.215												
Herfindahl Index (for the CD in which the CCS is located)	0.195	0.201	0.209	0.208	0.206												

Note: Due to rounding, figures may not sum to totals.
.. not applicable
0 true zero or a value rounded to zero
Source: Statistics Canada, Census of population, 1981 to 2001.

Timmins[12]

Between 1996 and 2001, the population of the Timmins CA declined by 8 percent (Table C1). In the same period, the experienced workforce declined 7 percent in the Timmins CCS (Table C6).

Timmins lost one-half of its mining workforce between 1981 and 2001. However, total employment grew in the 1980s due to strong growth in the services sector. Producer services represented around 10 percent of the workforce throughout the 1986 to 2001 period.

By 2001, the HI was higher, indicating economic specialization, due in large part to the historically high share of total employment in social services and in distributive services. In fact, Timmins appears as a major centre for distributive services with 28 percent of the workforce in distributive services.

12. The CCS, CSD and CA of Timmins are the same geographic area.

Table C6 Experienced workforce by industry sector, Timmins CCS, 1981 to 2001

Industry sector	Experienced workforce																
	Number					Percent distribution across industrial sectors					Percent growth/decline over time						
	1981	1986	1991	1996	2001	1981	1986	1991	1996	2001	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1981 to 1991	1991 to 2001	1981 to 2001
Primary industries																	
All primary	4 970	2 285	3 675	3 430	2 690	24	10	16	15	13	-54	61	-7	-22	-26	-27	-46
Agriculture and related	105	95	80	75	80	1	0	0	0	0	-10	-16	-6	7	-24	0	-24
Fishing and trapping	0	0	10	0	15	0	0	0	0	0							
Logging and forestry	260	305	155	235	220	1	1	1	1	1	17	-49	52	-6	-40	42	-15
Mining, quarrying and oil wells	4 620	1 880	3 440	3 125	2 375	22	9	15	14	11	-59	83	-9	-24	-26	-31	-49
Traditional manufacturing																	
All traditional manufacturing	770	645	500	720	725	4	3	2	3	3	-16	-22	44	1	-35	45	-6
Agricultural manufacturing	115	115	75	70	30	1	1	0	0	0	0	-35	-7	-57	-35	-60	-74
Fishing manufacturing	0	0	0	0	0	0	0	0	0	0							
Forestry manufacturing	630	520	395	635	680	3	2	2	3	3	-17	-24	61	7	-37	72	8
Mining manufacturing	0	0	10	10	0	0	0	0	0	0							
Other manufacturing	30	10	25	15	20	0	0	0	0	0	-67	150	-40	33	-17	-20	-33
Complex manufacturing																	
All complex manufacturing	815	3 235	930	730	430	4	15	4	3	2	297	-71	-22	-41	14	-54	-47
Agricultural manufacturing	0	0	10	0	0	0	0	0	0	0							
Printing	95	115	110	170	125	0	1	0	1	1	21	-4	55	-26	16	14	32
Metals manufacturing	640	3 055	700	490	275	3	14	3	2	1	377	-77	-30	-44	9	-61	-57
Non-metals manufacturing	85	65	105	65	30	0	0	0	0	0	-24	62	-38	-54	24	-71	-65
Construction	1 380	1 200	1 685	1 445	1 365	7	5	7	6	6	-13	39	-13	-6	21	-18	-1
Distributive services	5 230	5 495	5 675	6 075	5 990	25	25	24	27	28	5	3	7	-1	9	6	15
Producer services	1 550	2 125	2 640	2 215	2 140	7	10	11	10	10	37	24	-16	-3	70	-19	38
Personal services	2 120	2 565	2 870	2 970	2 795	10	12	12	13	13	21	12	3	-6	35	-3	32
Social services	4 110	4 520	5 365	5 285	5 055	20	20	23	23	24	10	19	-1	-4	31	-6	23
All industries	20 950	22 875	23 315	22 875	21 195	100	100	100	100	100	5	6	-2	-7	11	-9	1
Herfindahl Index (for Timmins CCS)	0 172	0 157	0 169	0 174	0 183												
Herfindahl Index (for the CD in which the CCS is located)	0 151	0 149	0 161	0 166	0 174												

Note: Due to rounding, figures may not sum to totals.
.. not applicable
0 true zero or a value rounded to zero
Source: Statistics Canada, Census of population, 1981 to 2001

Kenora[13]

Between 1996 and 2001, the population of the Kenora CA declined by 3.2 percent (Table C1). In the same period, the experienced workforce increased by 1 percent in the Kenora CCS (Table C7). However, the Kenora CCS, in fact, includes the entire census division of the District of Kenora. Thus, our data on the employment structure and trends for the Kenora CCS is the data for the census division of the District of Kenora.

As is the case with other large CCSs in Northern Ontario, the Kenora CCS experienced large declines in mining employment (down 61 percent from 1981 to 2001) and declines in forestry manufacturing. Although employment in forestry manufacturing has fluctuated over the 1981 to 2001 period, the level of employment in forestry manufacturing was 19 percent less in 2001, compared to the 1981 employment level. Interestingly, in absolute numbers, employment in logging and forestry was higher in 2001 than in any previous census period.

Overall, the Kenora CCS has experienced employment growth, albeit at quite uneven rates, over the twenty years from 1981 to 2001. Once again, the major growth sector was in social services — up 58 percent in 2001, compared to 1981.

13. The CCS of Kenora is also the complete census division (CD) or District of Kenora. In 1996, the population of Kenora was about 10,000, and the rest of the CCS was 53,270.

The continuous increase in social services employment, representing 32 percent of the workforce in 2001, has caused the HI to show increasing specialization in the Kenora CCS over this twenty year period.

Table C7 Experienced workforce by industry sector, Kenora CCS, 1981 to 2001

Industry sector	Experienced workforce																
	Number					Percent distribution across industrial sectors					Percent growth/decline over time						
	1981	1986	1991	1996	2001	1981	1986	1991	1996	2001	1981 to 1986	1986 to 1991	1991 to 1996	1996 to 2001	1981 to 1991	1991 to 2001	1981 to 2001
Primary industries																	
All primary	3,000	2,385	2,425	1,800	1,980	12	9	9	6	7	-21	2	-26	10	-19	-18	-34
Agriculture and related	145	200	220	255	165	1	1	1	1	1	38	10	16	-35	52	-25	14
Fishing and trapping	80	60	40	25	30	0	0	0	0	0							
Logging and forestry	875	925	895	660	1,035	3	4	3	2	3	6	-3	-26	57	2	16	18
Mining, quarrying and oil wells	1,905	1,200	1,275	860	750	7	5	4	3	3	-37	6	-33	-13	-33	-41	-61
Traditional manufacturing																	
All traditional manufacturing	3,275	2,690	2,450	2,810	2,600	13	10	9	10	9	-18	-9	15	-7	-25	6	-21
Agricultural manufacturing	120	100	115	100	55	0	0	0	0	0	-17	15	-13	-45	-4	-52	-54
Fishing manufacturing	15	0	0	0	10	0	0	0	0	0							
Forestry manufacturing	3,085	2,555	2,315	2,675	2,475	12	10	8	9	8	-17	-9	16	-7	-24	7	-19
Mining manufacturing	5	0	10	0	0	0	0	0	0	0							
Other manufacturing	70	35	10	30	65	0	0	0	0	0	-50	-71	200	117	-86	550	-7
Complex manufacturing																	
All complex manufacturing	400	370	430	320	350	2	1	2	1	1	-8	16	-26	9	8	-19	-13
Agricultural manufacturing	0	0	0	0	0	0	0	0	0	0							
Printing	160	140	185	155	135	1	1	1	1	0	-13	32	-16	-13	16	-27	-16
Metals manufacturing	120	175	190	80	155	0	1	1	0	1	46	9	-58	94	58	-18	29
Non-metals manufacturing	115	50	55	80	60	0	0	0	0	0	-57	10	45	-25	-52	9	-48
Construction	1,580	1,205	1,480	1,915	1,960	6	5	5	7	7	-24	23	29	2	-6	32	24
Distributive services	6,255	6,355	6,585	6,950	6,885	24	25	23	24	23	2	4	6	-1	5	5	10
Producer services	1,660	2,175	1,580	2,030	1,805	6	8	5	7	6	31	-28	30	-11	-5	14	9
Personal services	3,770	4,085	4,220	4,435	4,605	15	16	15	16	16	8	3	10	4	12	9	22
Social services	5,970	6,600	9,255	8,960	9,445	23	26	33	30	32	11	40	-3	5	55	2	58
All industries	**25,905**	**25,855**	**28,410**	**29,420**	**29,620**	**100**	**100**	**100**	**100**	**100**	**0**	**10**	**4**	**1**	**10**	**4**	**14**
Herfindahl Index (for Kenora CCS)	0.161	0.173	0.197	0.192	0.197												
Herfindahl Index (for the CD in which the CCS is located)	0.161	0.173	0.197	0.192	0.197												

Note: Due to rounding, figures may not sum to totals.
.. not applicable
0 true zero or a value rounded to zero
Source: Statistics Canada, Census of population, 1981 to 2001.

Northern Ontario cities – increase exports or continue to decline

Each of the larger towns and cities in Northern Ontario experienced population declines in the 1996 to 2001 period. Most experienced dramatic declines in mining employment (in part due to the introduction of larger machines for underground work), in forestry manufacturing (in part due to the introduction of labour-saving technologies in sawmills and pulp and paper mills) and in metals manufacturing (again, in part due to the substitution of capital for labour).

In the 1980s, social services employment grew — and sometimes this growth was strong enough to compensate for the decline in forestry-related and mining-related employment. In the 1990s, social services employment declined, which reinforced the continuing decline in forestry-related and mining-related employment.

In all the cities of Northern Ontario, employment in producer services grew and now represents a significant, although not major, share (up to 12 percent in Sudbury and North Bay) of employment in some cities.

The relative growth in employment in social services (i.e., the increase in the share of employment in social services) caused the HI to show increased specialization in most cities over this period.

Given the large declines in employment in the export-related sectors of forestry and mining, the challenge for the cities of Northern Ontario is to find something new to export to maintain their (former) levels of employment. If they do not find anything new to export they can expect further declines in total employment levels over time.

Appendix D Factors associated with employment change in each five year period from 1981 to 2001

Table D1 Factors associated with employment change between 1981 and 1986

	Mean	Regression coefficient	Standard error	"t" statistic	Significant at 95 percent confidence level
Dependent variable					
Percent change in employment from 1981 to 1986	6.55	...	...	...	
Independent variables (in 1981)					
Intercept		-12.01	21.09	-0.57	
Herfindahl Index	0.18	-32.17	30.92	-1.04	
Percent with non-agricultural self-employment	8.98	0.72	0.39	1.86	
Percent (25 to 29 years of age) who moved in during past 5 years	38.14	-0.08	0.10	-0.79	
Percent (55 to 74 years of age) who moved in during past 5 years	13.03	-0.10	0.20	-0.50	
Average years of schooling (those 25 to 54 years of age)	10.82	2.45	1.23	2.00	Yes
Percent (20 to 24 years of age) with high school diploma	58.85	0.13	0.11	1.22	
Female (25 to 54 years of age) unemployment rate	7.98	-0.13	0.26	-0.50	
Male (25 to 54 years of age) unemployment rate	4.66	0.37	0.38	0.96	
Percent below Low Income Cut-off	16.29	-0.16	0.24	-0.69	
Community is in a "city" census division	0.27	-2.54	3.59	-0.71	
Percent of employment in agriculture	5.14	0.21	0.21	0.98	
Percent of employment in logging and forestry	2.24	0.58	0.62	0.94	
Percent of employment in mining	5.86	-0.16	0.14	-1.09	
Percent of employment in pulp, paper and sawmills	6.64	-0.27	0.21	-1.30	
Percent of employment in metals manufacturing	3.96	-0.21	0.33	-0.65	
Percent of employment in producer services	6.29	-1.31	0.59	-2.21	Yes

Notes: The number of observations was 70.
The adjusted R-square was 0.17.
The dependent variable is calculated as the log of employment in 2001 minus the log of employment in 1981. There was no significant multicollinearity among the dependent variables.
... not applicable
Source: Statistics Canada, Census of population, 1981 and 1986.

Table D2 Factors associated with employment change between 1986 and 1991

	Mean	Regression coefficient	Standard error	"t" statistic	Significant at 95 percent confidence level
Dependent variable					
Percent change in employment from 1986 to 1991	11.14	...	...	...	
Independent variables (in 1986)					
Intercept		42.35	42.08	1.01	
Herfindahl Index	0.18	-12.46	49.13	-0.25	
Percent with non-agricultural self-employment	9.51	0.43	0.44	0.98	
Percent (25 to 29 years of age) who moved in during past 5 years	33.87	-0.22	0.14	-1.57	
Percent (55 to 74 years of age) who moved in during past 5 years	11.82	0.68	0.28	2.45	Yes
Average years of schooling (those 25 to 54 years of age)	11.48	-2.34	3.10	-0.75	
Percent (20 to 24 years of age) with high school diploma	63.08	0.04	0.14	0.26	
Female (25 to 54 years of age) unemployment rate	11.31	-0.18	0.31	-0.58	
Male (25 to 54 years of age) unemployment rate	7.94	-0.75	0.42	-1.80	
Percent below Low Income Cut-off	13.81	-0.02	0.28	-0.06	
Community is in a "city" census division	0.27	-0.91	4.12	-0.22	
Percent of employment in agriculture	4.53	-0.25	0.34	-0.75	
Percent of employment in logging and forestry	2.37	0.01	0.66	0.01	
Percent of employment in mining	4.25	-0.09	0.23	-0.41	
Percent of employment in pulp, paper and sawmills	6.12	-0.17	0.31	-0.56	
Percent of employment in metals manufacturing	4.16	0.06	0.47	0.12	
Percent of employment in producer services	6.33	0.29	0.84	0.34	

Notes: The number of observations was 70.
The adjusted R-square was 0.14.
The dependent variable is calculated as the log of employment in 2001 minus the log of employment in 1981. There was no significant multicollinearity among the dependent variables.
... not applicable
Source: Statistics Canada, Census of population, 1986 and 1991.

Table D3 Factors associated with employment change between 1991 and 1996

	Mean	Regression coefficient	Standard error	"t" statistic	Significant at 95 percent confidence level
Dependent variable					
Percent change in employment from 1991 to 1996	-1.41	...	...	...	
Independent variables (in 1991)					
Intercept		-7.88	26.24	-0.30	
Herfindahl Index	0.19	13.10	63.98	0.20	
Percent with non-agricultural self-employment	9.09	0.56	0.40	1.41	
Percent (25 to 29 years of age) who moved in during past 5 years	41.77	0.05	0.12	0.40	
Percent (55 to 74 years of age) who moved in during past 5 years	16.16	-0.17	0.15	-1.11	
Average years of schooling (those 25 to 54 years of age)	11.95	0.58	1.35	0.43	
Percent (20 to 24 years of age) with high school diploma	72.95	0.03	0.09	0.35	
Female (25 to 54 years of age) unemployment rate	9.63	-0.28	0.32	-0.88	
Male (25 to 54 years of age) unemployment rate	9.79	0.35	0.33	1.05	
Percent below Low Income Cut-off	11.43	-1.21	0.29	-4.19	Yes
Community is in a "city" census division	0.27	-2.59	3.37	-0.77	
Percent of employment in agriculture	4.08	0.22	0.33	0.66	
Percent of employment in logging and forestry	1.67	0.40	0.89	0.45	
Percent of employment in mining	3.20	-0.10	0.30	-0.32	
Percent of employment in pulp, paper and sawmills	5.11	-0.11	0.33	-0.35	
Percent of employment in metals manufacturing	3.34	0.58	0.61	0.95	
Percent of employment in producer services	7.36	0.21	0.45	0.47	

Notes: The number of observations was 79.
The adjusted R-square was 0.20.
The dependent variable is calculated as the log of employment in 2001 minus the log of employment in 1981. There was no significant multicollinearity among the dependent variables.
... not applicable
Source: Statistics Canada, Census of population, 1991 and 1996.

Table D4 Factors associated with employment change between 1996 and 2001

	Mean	Regression coefficient	Standard error	"t" statistic	Significant at 95 percent confidence level
Dependent variable					
Percent change in employment from 1996 to 2001	1.24	...	...	...	
Independent variables (in 1996)					
Intercept		61.31	31.03	1.98	Yes
Herfindahl Index	0.19	40.40	72.07	0.56	
Percent with non-agricultural self-employment	10.72	-0.10	0.37	-0.28	
Percent (25 to 29 years of age) who moved in during past 5 years	35.10	0.04	0.12	0.33	
Percent (55 to 74 years of age) who moved in during past 5 years	12.25	0.59	0.20	2.92	Yes
Average years of schooling (those 25 to 54 years of age)	12.37	-5.93	1.51	-3.94	Yes
Percent (20 to 24 years of age) with high school diploma	78.51	0.11	0.12	0.95	
Female (25 to 54 years of age) unemployment rate	9.82	-0.36	0.30	-1.22	
Male (25 to 54 years of age) unemployment rate	11.41	0.00	0.27	0.00	
Percent below Low Income Cut-off	14.47	-0.24	0.24	-0.98	
Community is in a "city" census division	0.27	4.89	3.63	1.35	
Percent of employment in agriculture	3.65	0.06	0.40	0.15	
Percent of employment in logging and forestry	1.75	-0.71	0.86	-0.82	
Percent of employment in mining	3.09	-0.77	0.26	-2.94	Yes
Percent of employment in pulp, paper and sawmills	5.21	-0.13	0.33	-0.39	
Percent of employment in metals manufacturing	3.23	0.03	0.64	0.04	
Percent of employment in producer services	6.84	-0.11	0.67	-0.16	

Notes: The number of observations was 79.
The adjusted R-square was 0.27.
The dependent variable is calculated as the log of employment in 2001 minus the log of employment in 1981. There was no significant multicollinearity among the dependent variables.
... not applicable
Source: Statistics Canada, Census of population, 1996 and 2001.

Appendix E Overview of occupational skill levels and gender

Table E1 Occupational skill group and gender, numbers in the experienced labour force, Northern Ontario, 1991, 1996 and 2001

	Managerial			Professional			Technical			Intermediate			Unskilled		
	Total	Male	Fe-male	Total	Male	Fe-male	Total	Male	Fe-male	Total	Male	Fe-male	Total	Male	Fe-male
	1991														
3544 Muskoka District Municipality	2,635	1,820	815	2,335	1,000	1,325	7,935	5,140	2,795	7,095	3,005	4,090	3,820	2,155	1,670
3548 Nipissing District	3,820	2,750	1,080	5,000	2,195	2,805	12,435	7,540	4,900	12,840	6,055	6,785	6,470	3,755	2,715
3549 Parry Sound District	2,010	1,390	620	1,635	620	1,015	5,875	3,795	2,085	5,210	2,630	2,580	2,960	1,630	1,330
3551 Manitoulin District	485	285	205	645	240	405	1,465	930	535	1,425	685	745	840	565	275
3552 Sudbury District	1,060	655	405	1,085	405	675	4,185	2,930	1,250	3,955	2,190	1,765	2,185	1,225	960
3553 Sudbury Regional Municipality	6,520	4,335	2,185	10,695	4,965	5,730	27,540	18,060	9,480	24,675	10,475	14,200	12,125	6,740	5,380
3554 Timiskaming District	1,490	1,015	480	2,095	895	1,200	5,785	3,715	2,070	5,910	3,105	2,810	2,705	1,530	1,180
3556 Cochrane District	2,995	1,965	1,030	4,845	2,030	2,815	15,410	10,400	5,005	13,560	6,940	6,620	7,855	4,565	3,285
3557 Algoma District	4,910	3,105	1,805	6,900	3,015	3,885	19,945	13,345	6,600	18,630	8,875	9,750	9,965	5,530	4,430
3558 Thunder Bay District	6,710	4,430	2,280	9,825	4,180	5,645	27,760	18,335	9,425	26,035	12,445	13,590	12,485	6,870	5,615
3559 Rainy River District	980	645	335	1,160	465	695	3,705	2,365	1,340	3,445	1,775	1,670	1,845	1,055	790
3560 Kenora District	2,685	1,840	840	2,690	1,175	1,515	9,355	6,275	3,080	8,980	4,355	4,625	4,700	2,710	1,990
Northern Ontario total	36,300	24,235	12,080	48,910	21,185	27,710	141,395	92,830	48,565	131,760	62,535	69,230	67,955	38,330	29,620
	1996														
3544 Muskoka District Municipality	2,540	1,690	855	2,300	965	1,340	6,880	4,290	2,585	7,635	3,680	3,950	4,585	2,430	2,155
3548 Nipissing District	3,275	2,115	1,165	4,880	2,240	2,635	11,070	6,650	4,415	13,030	6,140	6,885	6,500	3,580	2,920
3549 Parry Sound District	1,815	1,175	640	1,865	800	1,060	5,375	3,405	1,970	5,740	2,795	2,945	3,150	1,610	1,545
3551 Manitoulin District	420	255	165	620	205	420	1,555	980	570	1,640	835	805	895	470	420
3552 Sudbury District	770	475	295	1,075	400	670	3,675	2,495	1,180	3,570	1,950	1,615	2,090	1,170	920
3553 Sudbury Regional Municipality	6,020	4,050	1,970	10,360	4,450	5,905	24,775	16,190	8,580	24,380	11,010	13,375	12,185	6,320	5,865
3554 Timiskaming District	1,585	1,090	500	1,995	770	1,225	5,450	3,510	1,945	5,350	2,660	2,695	2,655	1,310	1,340
3556 Cochrane District	3,225	1,980	1,240	5,235	2,150	3,080	14,190	9,465	4,725	13,180	6,515	6,665	7,720	4,275	3,440
3557 Algoma District	3,930	2,430	1,500	7,340	3,315	4,020	17,000	11,055	5,950	17,135	7,995	9,140	10,640	5,560	5,075
3558 Thunder Bay District	5,875	3,875	2,000	10,440	4,355	6,090	24,215	16,200	8,010	25,515	12,475	13,040	12,830	6,450	6,385
3559 Rainy River District	865	575	290	1,240	485	755	3,575	2,195	1,380	3,495	1,805	1,690	2,045	1,050	990
3560 Kenora District	2,815	1,875	945	3,310	1,205	2,100	8,815	5,690	3,125	9,240	4,450	4,790	5,235	3,000	2,235
Northern Ontario total	33,145	21,585	11,565	50,660	21,340	29,300	126,575	82,125	44,435	129,910	62,310	67,595	70,530	37,225	33,290
	2001														
3544 Muskoka District Municipality	3,115	1,930	1,185	2,775	1,095	1,675	7,965	4,810	3,155	7,755	3,655	4,100	4,575	2,320	2,260
3548 Nipissing District	4,185	2,725	1,460	5,670	2,605	3,065	10,445	6,120	4,325	12,215	5,620	6,595	6,330	3,415	2,915
3549 Parry Sound District	2,270	1,475	800	2,100	805	1,295	5,865	3,500	2,365	5,430	2,715	2,715	3,105	1,560	1,545
3551 Manitoulin District	660	340	320	805	310	490	1,640	935	700	1,560	675	885	960	560	395
3552 Sudbury District	1,035	640	395	1,005	370	635	3,670	2,410	1,260	3,505	1,915	1,595	1,955	980	980
3553 Sudbury Regional Municipality	7,165	4,565	2,605	10,710	4,345	6,370	22,075	13,245	8,830	22,480	10,340	12,135	12,575	6,430	6,140
3554 Timiskaming District	1,485	910	570	1,920	735	1,185	5,085	3,060	2,025	4,790	2,385	2,405	2,455	1,325	1,130
3556 Cochrane District	3,020	1,830	1,185	5,040	1,960	3,085	12,765	8,260	4,500	12,770	6,680	6,090	7,085	3,775	3,315
3557 Algoma District	4,390	2,670	1,715	7,955	3,210	4,740	15,995	9,760	6,235	15,905	7,640	8,270	9,675	5,000	4,675
3558 Thunder Bay District	6,345	3,905	2,440	11,050	4,455	6,595	23,575	14,725	8,845	23,280	11,475	11,805	12,060	6,265	5,795
3559 Rainy River District	975	530	450	1,095	380	715	3,445	2,085	1,360	3,315	1,740	1,575	1,905	1,030	870
3560 Kenora District	3,150	1,855	1,300	3,585	1,465	2,120	9,305	6,245	3,060	8,355	3,800	4,560	5,215	2,705	2,515
Northern Ontario total	37,795	23,375	14,425	53,710	21,735	31,970	121,830	75,155	46,660	121,360	58,640	62,730	67,895	35,365	32,535

Note: Due to rounding, figures may not sum to totals.
Source: Statistics Canada, Census of population, 1991 to 2001

Table E2 Occupational skill group and gender, change in the experienced labour force, Northern Ontario, 1991, 1996 and 2001

	Managerial			Professional			Technical			Intermediate			Unskilled		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
	Percent change, 1991 to 1996														
3544 Muskoka District Municipality	-4	-7	5	-1	-4	1	-13	-17	-8	8	22	-3	20	13	29
3548 Nipissing District	-14	-23	8	-2	2	-6	-11	-12	-10	1	1	1	0	-5	8
3549 Parry Sound District	-10	-15	3	14	29	4	-9	-10	-6	10	6	14	6	-1	16
3551 Manitoulin District	-13	-11	-20	-4	-15	4	6	5	7	15	22	8	7	-17	53
3552 Sudbury District	-27	-27	-27	-1	-1	-1	-12	-15	-6	-10	-11	-8	-4	-4	-4
3553 Sudbury Regional Municipality	-8	-7	-10	-3	-10	3	-10	-10	-9	-1	5	-6	0	-6	9
3554 Timiskaming District	7	7	4	-5	-14	2	-6	-6	-6	-9	-14	-4	-2	-14	14
3556 Cochrane District	8	1	20	8	6	9	-8	-9	-6	-3	-6	1	-2	-6	5
3557 Algoma District	-20	-22	-17	6	10	3	-15	-17	-10	-8	-10	-6	7	1	15
3558 Thunder Bay District	-12	-13	-12	6	4	8	-13	-12	-15	-2	0	-4	3	-6	14
3559 Rainy River District	-12	-11	-13	7	4	9	-4	-7	3	1	2	1	11	0	25
3560 Kenora District	5	2	13	23	3	39	-6	-9	1	3	2	4	11	11	12
Northern Ontario total	-9	-11	-4	4	1	6	-10	-12	-9	-1	0	-2	4	-3	12
	Percent change, 1996 to 2001														
3544 Muskoka District Municipality	23	14	39	21	13	25	16	12	22	2	-1	4	0	-5	5
3548 Nipissing District	28	29	25	16	16	16	-6	-8	-2	-6	-8	-4	-3	-5	0
3549 Parry Sound District	25	26	25	13	1	22	9	3	20	-5	-3	-8	-1	-3	0
3551 Manitoulin District	57	33	94	30	51	17	5	-5	23	-5	-19	10	7	19	-6
3552 Sudbury District	34	35	34	-7	-8	-5	0	-3	7	-2	-2	-1	-6	-16	7
3553 Sudbury Regional Municipality	19	13	32	3	-2	8	-11	-18	3	-8	-6	-9	3	2	5
3554 Timiskaming District	-7	-17	14	-4	-5	-3	-7	-13	4	-10	-10	-11	-8	1	-16
3556 Cochrane District	-6	-8	-4	-4	-9	0	-10	-13	-5	-3	3	-9	-8	-12	-4
3557 Algoma District	12	10	14	8	-3	18	-6	-12	5	-7	-4	-10	-9	-10	-8
3558 Thunder Bay District	8	1	22	6	2	8	-3	-9	10	-9	-8	-9	-6	-3	-9
3559 Rainy River District	13	-8	55	-12	-22	-5	-4	-5	-1	-5	-4	-7	-7	-2	-12
3560 Kenora District	12	-1	38	8	22	1	6	10	-2	-10	-15	-5	0	-10	13
Northern Ontario total	14	8	25	6	2	9	-4	-8	5	-7	-6	-7	-4	-5	-2
	Percent change, 1991 to 2001														
3544 Muskoka District Municipality	18	6	45	19	10	26	0	-6	13	9	22	0	20	8	35
3548 Nipissing District	10	-1	35	13	19	9	-16	-19	-12	-5	-7	-3	-2	-9	7
3549 Parry Sound District	13	6	29	28	30	28	0	-8	13	4	3	5	5	-4	16
3551 Manitoulin District	36	19	56	25	29	21	12	1	31	9	-1	19	14	-1	44
3552 Sudbury District	-2	-2	-2	-7	-9	-6	-12	-18	1	-11	-13	-10	-11	-20	2
3553 Sudbury Regional Municipality	10	5	19	0	-12	11	-20	-27	-7	-9	-1	-15	4	-5	14
3554 Timiskaming District	0	-10	19	-8	-18	-1	-12	-18	-2	-19	-23	-14	-9	-13	-4
3556 Cochrane District	1	-7	15	4	-3	10	-17	-21	-10	-6	-4	-8	-10	-17	1
3557 Algoma District	-11	-14	-5	15	6	22	-20	-27	-6	-15	-14	-15	-3	-10	6
3558 Thunder Bay District	-5	-12	7	12	7	17	-15	-20	-6	-11	-8	-13	-3	-9	3
3559 Rainy River District	-1	-18	34	-6	-18	3	-7	-12	1	-4	-2	-6	3	-2	10
3560 Kenora District	17	1	55	33	25	40	-1	0	-1	-7	-13	-1	11	0	26
Northern Ontario total	4	-4	19	10	3	15	-14	-19	-4	-8	-6	-9	0	-8	10

Source: Statistics Canada, Census of population, 1991 to 2001.

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